A

PRACTICAL ESSAY

ON

DISEASES OF THE VISCERA;

PARTICULARLY THOSE OF THE

STOMACH AND BOWELS,

THE

LIVER, SPLEEN, and URINARY BLADDER:

IN WHICH THEIR

NATURE, TREATMENT, AND CURE,

ARE CLEARLY POINTED OUT AND EXPLAINED.

By JOHN LEAKE, M. D.

Member of the ROYAL COLLEGE of PHYSICIANS, LONDON,
and Phyſician to the Weſtminſter Lying-in Hoſpital;
at his Houſe in Parliament-Street.

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M.DCC.XCII.

*** *The Reader is requested to excuse a* MISTAKEN REPETITION, *in the* SUPPLEMENT, *on* DIET, *which happened during the Author's late illness, in his absence from town; from a part of the Manuscript being misplaced by the printer.*

Serfojee Rajah. 1827

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ABSTRACT

ABSTRACT ACCOUNT
OF THE
WESTMINSTER LYING-IN HOSPITAL,
NEAR THE BRIDGE,

Inſtituted A. D. 1765, and ſupported by Voluntary Subſcription.

Right. Hon. Earl GROSVENOR, Preſident.

Duke of Rutland,	Vice-	Rt. Hon. C. J. Fox,
Adm. Lord Hood,	Preſi-	Maj. Gen. Sir R. Boyd,
Hon. Gen. W. Hervey,	dents.	Hon. T. Groſvenor.

IN the year 1765, Dr. *John Leake*, of Parliament-Street, London, purchaſed a piece of Ground on a Building-Leaſe, and afterwards preſented to the Public the *Original Plan for the Inſtitution of this Hoſpital.* Soon after the Building was raiſed, he voluntarily, and without any conſideration, aſſigned over to the Governors all his right of the above Ground, in favour of the ſaid Hoſpital.

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The Inſtitution of this Hoſpital, was principally deſigned to relieve the *Wives of diſtreſſed Houſekeepers*, or thoſe of *poor, induſtrious Tradeſmen*, who

who from unavoidable misfortunes, or the expence of maintaining large families, were *reduced to real want*; also, for those of *Soldiers and Sailors.*— But the Governors moved with compassion at the many severe hardships of *Single Women*, who, on that account, were rejected elsewhere; they unanimously resolved to admit such of them as are deserted and in deep distress; with the humane intention of saving them from *Despair*, and preventing the lamentable Crimes of *Suicide*, and *Child-Murder!*

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- Dr. *James Ford*, Physician to the Queen.
- Dr. *Richard Huck-Saunders*.

Mr. *Lewis Poignant*, Surgeon.

Rev. Mr. *Stainsby*, Chaplain.

Visiting Apothecaries,
- *Robert Sherson*, Esq.
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Mrs. *Atwell*, Matron.

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In which their Nature is explained, and their Treatment clearly laid down, *divested of the Terms of Art*, for the Use of those affected with such Diseases, as well as the *Medical Reader*.

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By JOHN LEAKE, M. D.

Member of the ROYAL COLLEGE of PHYSICIANS, LONDON, and Physician to the Westminster Lying-in Hospital.

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By

By the following Letter, with which the Author was honoured, A. D. 1775, *it appears that his* Practical Observations, &c. *have been translated into* French; *they have also been translated into the* German *and other languages.*

Monsieur Monsieur *John Leake*, docteur en médecine, membre du college royal des médecins de Londres, &c.

MAximâ cum voluptate et non sine fructu, Vir illustrissime et ornatissime, tuum legi et relegi librum, cui titulus est: *Practical Observations on the Child-bed Fever, printed London* 1772. In illo enim reperi animadversiones curiosas et plane novas de affectibus omenti, disquisitiones nitidas, et sagaces, de curatione febris puerperium insequentis, dubitationes quas dictarunt prudentia et moderatio, contra systema nostri Celeberrimi *Levret*, cogitationes accuratas de hæmorragiis ante, et post partum. Quid magis? in toto judicium et scientia veri bonique medici refulget. His itaque perpensis, seu ægrorum salutem, seu artis medicæ incrementum prospiciam, tuum librum cunctis gratissimum duxi; quapropter ut melius innotescat, hunc in idioma gallicum converto, jam ferme absoluta est interpretatio; et paucos intra menses, si tibi libet, prelo publico poterit in Francia committi.

Mihi familiaris et colendus amicus habet nunc sub prelo tractatum idiomate Gallico scriptum de hæmorrhagiis uterinis. Plurimis abhinc mensibus auctori communicaveram versionem tuæ sectionis V. æ. *Of the nature and cause of Uterine Hæmorrhages, and their treatment, &c.* in hoc novo tractatu mei amici, multa sunt de te excerpta cum laude tui ingenii et tui operis.

Auctor novi tractatus, post expositionem variarum methodorum contra hæmorrhagias uteri, nil efficacius inveniit quam obturatio vaginæ cum Linteolis vel siccis, vel imbutis aceto, sed profunde immissis. Hæc methodus olim vetustissimis nota, in oblivione quodammodo jacebat; sed nunc resurgit longa et felici experientia stabilita; et enim introductio linteorum in vagina dum sistit sanguinis fluxum juvat quoque formationem coaguli; interim uterus novas acquirit vires; sese conglomerat et constringit, contractionibusque propellet coagulatum sanguinem et linteola immissa; sed ut obturamentum vaginæ sit semper faustum, plurimæ sunt adhibendæ cautiones: scilicet,

cet, mollis compressio uteri cum manu, applicatio supra pubem linteorum aqua frigida, aut forsan melius aceto madidorum, usus aëris frigidi, et, ut uno dicam verbo, quidquid potest juvare uteri contractiones et vasorum sanguinem fundentium clausuram.

Celeberrimus *Hoffman*, *Cornelius Trioen*, multique alii jam indicarant obturamentum vaginæ contra hæmorrhagias uteri; hæc methodus tibi, Vir clarissime, non erat ignota; attamen in praxi vix erat explorata. In curriculo mensis proximi, ut opinor, novus tractatus mei amici evulgabitur; et in illo videre poteris ferme omnia quæ scripsisti de opio, medicamentis astringentibus, venæ sectione, &c.

Vale, Vir clarissime; et quanquam sim extraneus, et nullo modo tibi notus, non dedigneris, quæso, meam sinceram admirationem. FRANCISCUS CHAUSSIER.

Datum Divione die 21. 7bris. 1775.

Chirurgiæ magister in urbe Divionensi apud Burgundos, acad. reg. chirurgiæ Parisiensis correspondens, &c.

P. S. Si velis mihi responsum dare, subjungo inscriptionem epistolæ in idiomate gallico.

A Monsieur Monsieur Chaussier, Maître en Chirurgie, &c. à Dyon.

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By JOHN LEAKE, M.D.

*** The advertised Compounds, named *Lisbon Diet-Drink* and *Leake's Pills*, &c. are unknown to the Author.

††† *Dr. Leake's hours for advice, at his House in Parliament-Street, are from ten to twelve in the Morning.*

A

PRACTICAL ESSAY

ON

DISEASES

OF THE

ABDOMINAL VISCERA, &c.

SECTION I.

Of the general functions of the STOMACH, *and natural qualities of* SALIVA, BILE, *and* PANCREATIC JUICE *subordinate to its use; and of the Disorders proceeding from depravity, redundance, or defect of those fluids.*

NO Diseases incident to the human body are more frequent than those of the *Stomach and Bowels*, or more fatal in their event when neglected or improperly treated; for, then they frequently terminate in obstinate or incurable maladies of the *chronic kind*; and,

on the contrary, there are few diſeaſes, whether acute or chronic, which do not, in ſome degree, affect the *Stomach and Viſcera.*

A GENERAL knowledge of thoſe *vital parts*, and their uſe in the animal œconomy, is highly neceſſary towards a more clear and diſtinct idea of their ſeveral diſeaſes, and the means by which they may be relieved or cured; but, as their intimate connexion and mutual ſympathy are ſuch, that it would be difficult to underſtand the morbid affection of any ſingle part without relation to the whole; the following Eſſay, however imperfect, is not confined to what is uſually underſtood by the *ſtomach and alimentary tube*, but is intended alſo to comprehend Diſeaſes in general incident to the *abdominal viſcera*; namely, thoſe of the *Liver*, commonly called *bilious*; thoſe of the *Spleen* and *Pancreas*, hitherto but little attended to; and thoſe of the *Kidneys*, *Bladder*, and urinary paſſage, under the denomination of *gravel and ſtone*, or other local affections of thoſe parts; together with the *Hemorrhoids or Piles.*

To

To the whole is added a SUPPLEMENT containing obſervations on the *influence of the Paſſions* on the body and mind; and *the ſalutary power of Air, Diet,* and *Exerciſe*; inaſmuch as the laſt contribute more to promote *Digeſtion*, and remove *Diſeaſes of the Viſcera,* even than medicines themſelves; or at leaſt, without their aid, other remedies would often prove ineffectual.

BEFORE we examine the nature of *animal Digeſtion*, or the treatment of diſorders ariſing from its defect, it is neceſſary to conſider the qualities of two fluids which principally contribute thereunto, namely, *Saliva* and *Bile*; for, as the firſt of thoſe creates appetite, and helps to diſſolve the food; ſo, *bile* in the alimentary tube, diluted by *pancreatic juice*, is conducive to the ſame end, in perfecting digeſtion; conſequently, the depravity, deficiency, or redundance of thoſe fluids, by impairing the faculties of the ſtomach and hindering digeſtion, will lay the foundation of various diſeaſes.

THE *ſaliva* is a penetrating, ſoapy fluid prepared by the glands of the mouth, as the proper ſolvent which nature employs to ſoften and macerate aliment in the ſtomach, the better to aſſiſt digeſtion, as well as to create appetite; for, it has been obſerved, that *thoſe who diſcharge it profuſely, by frequent ſpitting, have a weak appetite and bad digeſtion.*

AFTER long abſtinence from food, the *Saliva* becomes ſo rancid and tenaceous, that it will extinguiſh *quickſilver*, in the ſame manner as unctuous ſubſtances; and, in ſcorbutic habits, where the blood is much vitiated, it is rendered putrid. By changing its nature it becomes extremely hurtful, and may be converted into a *mortal poiſon*, of which, we have the moſt ſtriking and melancholy inſtance in the bite of a *mad dog*, where the venom is lodged in the ſaliva.

THE health of *Monaſtics* who rigorouſly enjoin themſelves the penance of *long-faſting*, ſuffers much on that account. They are obſerved to have an offenſive breath, attended with

looſeneſs

loosness of teeth, sickness at stomach, and giddiness in the head. Those effects manifestly proceed from a partial corruption of the animal fluids; and from the same cause, the milk of nurses, after long fasting, is rendered salt and nauseous to the infant; insomuch that it may from thence be thrown into a diarrhœa or convulsions. The urine is also rendered high coloured and fœtid, sometimes creating strangury, or difficulty of making water.

THOSE disagreeable symptoms are occasioned by the *sharp salts* and *rancid oils* which naturally are carried off by urine; but when too long retained, powerfully dispose the juices to a state of putrefaction. That the kidneys are the proper organs, by which this *briny acrimony* is naturally discharged, appears manifest from the saltness of urine; and because particular salts, as those of *nitre*, *sea-salt*, &c. when dissolved and taken into the blood, may be obtained from the urine by chemical process, and are *identified* by shooting into the *same crystalline form* as those which had been dissolved and received into the stomach.

ANIMALS, therefore, which *die of hunger*, ſeem rather to periſh by a corruption of the blood, or morbid change of its quality, than from a dimunition of its quantity; for, in deep conſumptions, where the waſting of body is much greater than in thoſe who die of hunger, the patient ſuſtains life for many months, though apparently exhauſted.

HENCE, a circumſtance, though ſtrange, becomes perfectly conſiſtent and intelligible, viz. why animals will ſo long ſurvive, even *twenty days* or more, by the uſe of *water only*; for, this fluid refreſhes and purifies the blood, by diſſolving its ſharp ſalts, which, with the corrupted oils, being conveyed off by urine, the body is preſerved from their pernicious and corroding qualities.

A REMARKABLE and well-authenticated example of this kind, happened, Nov. 13, 1788, to a girl who lived *eighteen days* on a barren moor, near Stronaway, in the Iſland of Lewis, without any other ſubſiſtence but *water*: The hiſtory

history of her case was drawn up by Mr. John Miller surgeon of that place, and is inserted in the fourth volume of the second Decade of Dr. Duncan's Medical Commentary for the year 1789.

It has been observed, by the assistance of a microscope, that the pale fluid circulating in the transparent vessels of a languid frog, soon acquires a more florid colour and brisker motion, after that reptile has been supplied with its proper nourishment. This experiment evidently shews the great advantage of eating often and in small quantities; a caution of much more consequence to those of weak stomachs than is generally imagined; for, by long fasting, they often become faint with sickness at stomach and universal languor; not only from want of circulating power in the blood, and its tendency to putrefaction, but also from its emptiness, or excessive collapsion. When the stomach is moderately full, it uniformly sustains or bolsters up the *Liver and Spleen*; but when empty, the liver descends by its

own weight, and, pulling down the diaphragm, with which it is connected, excites a painful, sickly sensation, which in some degree may be removed by gentle pressure on the abdomen, but more effectually by replenishing the stomach with food.

FROM this circumstance also may be inferred, that the vast recruit of strength after eating is owing to the introduction of fresh chyle into the system, and that an animal body, like a vegetable, cannot long survive with vigour, without the reficient power of new juices to supply the loss of those which were wasted and carried off by the action of the body; for, as oil is the *pabulum* of flame, so that vital fluid, *blood*, in purity and due quantity, is indispensibly necessary to feed the lamp of life; and this chiefly depends upon the *digestive faculty of the Stomach* rather than the quantity or quality of its aliment, since daily observation informs us, that plenty of the most nutritive aliment will be insufficient to sustain the infirm, whilst those of strong constitutions and

good

good digeſtion will gain ſtrength, though living ſparingly upon the hardeſt fare.

HENCE alſo may be ſeen the great advantage of taking fluid, aceſcent nouriſhment often, with a view to preſerve the blood in a ſtate of purity, eſpecially in *ſcorbutic* or *conſumptive* habits, where it evidently tends to putrefaction.

FROM the irritation of *ſaliva* on the ſpungy, *nervous lining* of the ſtomach, ſeems principally to ariſe that ſenſation we call *hunger*; but, when this delicate membrane is ſhrunk up and deſtroyed by the immoderate uſe of *ſpirituous liquors*, or the no leſs pernicious effects of *harſh, aſtringent medicines*; loſs of appetite will neceſſarily follow, which never can be reſtored.

THUS, it will alſo appear how both *Appetite and Digeſtion*, may vary according to the different quantity and quality of the *Saliva*; as well as the different degree of natural feeling in the nervous coat of the ſtomach; and why *bitters*, *ſteel*, and *mineral acids*, may quicken a languid appetite, for a time, although their long-

long-continued uſe will afterwards *deſtroy it.* Alſo, why oily food, which blunts the acrimony of *ſaliva,* and relaxes the ſtomach, will relieve that exceſſive hunger or preternatural craving for food, called *canine appetite.*

THE wonderful influence of the *Stomach and Bowels,* in ſubduing and changing the property of alimentary ſubſtances, ſtill appears more evident, by obſerving that ſome poiſons may be diveſted of their malignant power when ſwallowed, which, applied to the open veſſels of an ulcer or freſh wound, would ſuddenly have proved mortal.

THE German mountebank, who cauſed an enraged *Viper* to bite a piece of bread, which he eat before the multitude, ſeems to have been acquainted with this circumſtance; for, after being apparently taken ill, and mimicking convulſions, with other grievous effects of the poiſon, he had recourſe to a doſe of his *antidote,* and, in conſequence of its pretended efficacy, ſuddenly recovered.

WE are next to conſider the properties of *Bile*, an animal ſoap of a yellowiſh colour and prepared in the *Liver*, as by a large gland, to incorporate and combine the *oily and watery parts of our food*, ſo as to form a ſmooth emulſion or nutritious fluid called *chyle*, which could not, otherwiſe, have been ſo well effected; for, oil and water repel each other and will not mix without the interpoſition of *lixivial ſalt*, which, by the power of heat, forms that concrete called *ſoap*.

THAT *Bile* poſſeſſes a ſoapy quality is evident, by its uſe among fullers and ſilk-dyers, who employ it with ſucceſs in diſcharging oily ſpots or ſtains. It is alſo endowed with ſo ſtrong a diſſolving power, that curdled milk in the ſtomach of a calf, is thence rendered fluid as ſoon as it paſſes into the *ſmall guts*, which ſeem to anſwer the purpoſes of a ſecond ſtomach This ſaponaceous fluid may therefore be conſidered as a *liquid ſoap* and *natural purgative* which ſtimulates the bowels, and quickens their motion in expelling the fœces or groſſer part of our food.

IT

IT may be proper to obſerve, that as *want of ſaliva leſſens Appetite and impairs Digeſtion, ſo the bad qualities, redundance, or defect of bile, produce various diſorders of the ſtomach and bowels,* and render the body preternaturally *coſtive* or *laxative.* Where the *bile* is rancid, and corrupted, or abounds too much, it occaſions ſickneſs at *ſtomach* and vomiting, head-ache, colic pains, and *diarrhœa,* with ſtools of a deep yellow colour; but they are green, porraceous, and frothy, where *redundant acid prevails.*

WHETHER *Bile* offends in *quantity* or *quality,* nothing will ſo much correct it as plentiful dilution, and the liberal uſe of *vegetable acids*; ſince theſe two fluids have been experimentally found to *neutralize* or deſtroy each other.

IN ſuch caſes, the patient ſhould totally abſtain from fermented liquors; (rough cider, rheniſh wine, or old hock excepted.) Spare vegetable diet of the *aceſcent kind,* and the plentiful uſe of pure water, with lemon or orange juice, will afford relief; but a *ſolution of cryſtals of tartar* in pure water, with currant jelly which will

will impart to it a ſaponaceous quality, is preferable to all the reſt: It not only reſiſts putrefaction, and promotes the ſecretion of urine, but alſo keeps the body gently laxative.

WHEN *bile* is deficient in quantity, or too mild and inactive, or ſo thick and tenaceous as to obſtruct its canals; habitual *coſtiveneſs* will follow; and if ſuch depravities, to which thoſe of a ſedentary life are moſt ſubject, be not removed by proper medicines; *gall-ſtones* will often be formed in the gall-bladder, or its duct; from which, obſtruction of the *liver*, a jaundice, dropſy, or other *chronic diſeaſes*, are frequently the conſequence.

THE gall of animals, particularly that of the eel and pike, pills compounded of *ſoap* and *aloes*, with freſh whey, and nitre, or a ſmall portion of alkaline ſalt, and exerciſe on horſeback, will exalt and attenuate the *bile*, and render it more active and deterſive.

THAT the *Bile* is a fluid of great uſe in the animal œconomy, is manifeſt, ſeeing, that for its

its preparation, nature has appointed ſo large and complicated an organ as the *Liver*.

THE *Pancreas* is a large gland, ſimilar in ſtructure to thoſe which ſecrete the ſaliva, of a flattiſh, oblong form, and extends acroſs the abdomen, behind the ſtomach, liver and ſpleen. By its blood-veſſels it communicates with the *ſpleen* and *meſentery*; and, by its nerves, with the ſtomach and liver.

THE *Bile*, eſpecially that proceeding from the gall-bladder, is ſomewhant glutinous, inſomuch that, although it is a ſaponaceous fluid, it requires dilution, to make it mix more readily with the *chyle*, as well as to attenuate and render that nutritious emulſion thinner and more fit to enter the *lacteals*.

FOR this purpoſe, the *pancreatic juice* is plainly intended; becauſe, in quality and conſiſtence, it exactly reſembles *ſaliva*, and ſeems to anſwer the ſame purpoſe in the alimentary tube as ſaliva in the ſtomach, viz. farther to macerate the aliment, to exalt the nature of chyle, and render it leſs heterogeneous and diſſimilar

diſſimilar to the blood, after being thus diluted and incorporated with a fine animal lymph ſtrained off from the blood itſelf.

THAT the pancreatic juice ſhould alſo more effectually mix with and dilute the bile; its excretory duct unites with that of the laſt fluid, and, forming one common canal, empties itſelf into that part of the alimentary tube neareſt the ſtomach, called *duodenum*.

FROM the magnitude of the *Pancreas*, the quantity of its ſecreted juice muſt be very conſiderable; and, if it is affected by the exhibition of *mercury*, in the ſame manner as the *ſaliva glands*, to which it is ſimilar in ſtructure; it can then be no wonder, that the waſte of that fine, nutritious fluid, by a *mercurial ſalivation*, ſhould exhauſt the body and occaſion an *incurable conſumption*.

THERE is reaſon to think, that many *chronic complaints of the abdominal viſcera*, hitherto little attended to, or miſtaken for diſeaſes of the ſtomach, may originate from a *diſeaſed ſtate of the Pancreas*. Like other glands, it is ſubject to obſtruction,

obſtruction, inflammation, tumor, abſceſs, and even calculous concretions; it muſt alſo be obvious, that ſuch morbid affections will occaſion diſorders peculiar to the ſituation and connexion of this part, viz. *a ſenſe of weight and oppreſſion near the region of the ſtomach*, colic pains, or other ſymptoms of an obſcure and complicated nature.

THIS conjecture is confirmed by the hiſtory of ſeveral caſes in ancient writers, where, after diſſection the *Pancreas* was found *ſchirrous*, or *cancerous*, and ſometimes enormouſly enlarged, or corrupted and deſtroyed.

As the *pancreatic juice* is neceſſary for the dilution of chyle, towards its free paſſage through the lacteal veſſels into the blood, without which the animal ſyſtem could not be nouriſhed or ſuſtained; it will follow that its defect, or preternatural tenacity, will produce *obſtructions of the lymphatic veſſels*, and *meſenteric glands*, and occaſion that particular ſpecies of conſumption or waſting of the body, called *maraſmus*.

SECT.

SECT. II.

Of ANIMAL DIGESTION, *or the conversion of aliment into nourishment or chyle*; *and of* NUTRITION, *or the change of chyle into blood.*

HAVING pointed out the qualities of *Saliva*, *Bile*, and *Pancreatic Juice*, as subservient to the office of the *stomach* and *bowels*; and also the general disorders arising from a vitiated state of these fluids; we shall now consider the nature of *Animal Digestion*, and the various diseases of the *viscera*, proceeding from a defect of that extraordinary faculty.

THE *stomach* is the great source from which the animal body derives its nourishment and support. Here the first process of preparing that *vital fluid, called blood*, is begun; and as its digestive faculty is duly or imperfectly exerted on the aliment, so the blood will be rich, balmy, and pure; or crude, watery, and depraved; the first of these qualities will

contribute to health, the last will render it unfit for circulation and the purposes of life; and, consequently, lay the foundation of various diseases.

THE stomach may be considered as a vessel, or *Refectory* placed in the center of the body, for concocting and digesting the food, daily taken into it for sustenance. By the action of mastication or chewing, the aliment is comminuted or broken down, and, by mixing with the *saliva*, is macerated and reduced into a pulp: Thus prepared, it descends into the stomach, where, assisted by heat, and a supply of *gastric juice* similar to the *saliva*, it is supposed to undergo a slight degree of *fermentation*, by which the included air is rarefied and expanded; and bursting from its confinement, destroys the solid, compact texture of the aliment, rendering it one degree fitter for nourishment.

THIS will be more easily effected, as all animal and vegetable substances lose their cohesion, and naturally tend to dissolution, so soon

as

as circulation through their veſſels ceaſes, and when thus deprived of their contained air, which has been experimentally found to be the very *vinculum*, or bond of union which holds their parts together.

THE maſs being ſufficiently digeſted, is expelled from the ſtomach into the alimentary tube proceeding from it, where, its moſt nutritious parts, like a fine emulſion, which is called *chyle*, are ſtrained off and abſorbed by the *lacteals* or milky veſſels, and diſcharged into the *receptacle of chyle*; whence, by the *thoracic duct*, it is conveyed into the blood, and, by agitation in the *Lungs*, and repeated circulations with the general maſs, at laſt acquires the ſame colour, quality, and conſiſtence, as that fluid; or, in other words, is elaborated and *ripened* into blood.

BUT although this ſeems to be the moſt ſimple and rational theory of accounting for *Digeſtion*, it is not unexceptionable, and far from being univerſally adopted; for, ſome Phyſiologiſts have aſcribed it to animal heat; others to a diſſolving ferment in the ſtomach, and others to

to its action, or muſcular force on the contained aliment; but, indeed, it ſeems rather to be effected by a combination of cauſes, or concurrence of the whole, viz. by heat, moiſture, and motion.

Putrid ſubſtances taken into the ſtomach of carnivorous animals, have been found *ſweet* and inoffenſive to the ſmell, ſoon after being ſwallowed; and, in thoſe living ſolely on herbage, no ſigns of fermentation could be diſcovered when examined in the ſame manner: Hence there is reaſon to think that Digeſtion is neither performed by a *putrid*, or an *aceſcent ferment*, and that, when either of theſe qualities prevails in the ſtomach, they are not natural but morbid appearances, and certain ſigns of a *bad Digeſtion*.

We ſee, therefore, that this obſcure, animal proceſs is ſtill a ſecret in nature, having, for many ages, divided the opinions of Phyſicians and Phyſiologiſts, ſeveral of whoſe doctrines, though directly oppoſite to each other, have notwithſtanding been ſtrenuouſly ſupported by their

their advocates as right: This plainly ſhews, that, inſtead of real and ſubſtantial knowledge, we have only been preſented with vague and often inconſiſtent ſurmiſes, which, without doubt, ſome have advanced from a conviction of their truth, others from a deſire to advance ſomething that might appear new, and others from perſonal enmity and the ſpirit of contradiction, contending for ſuperiority rather than truth.

FROM what has preceded, it will evidently appear, how that vital ſtream, *blood*, is continually ſupplied and repleniſhed with freſh chyle paſſing into it by the milky veſſels, like ſo many little currents which keep up the circulation, and repair the daily waſte made by exerciſe and the natural diſcharges of the body; and how *Indigeſtion*, or a fault in the vital functions of the ſtomach and bowels, and their want of power to elaborate and prepare thoſe nutritious juices, may at laſt, vitiate the ſolids and produce ill health; for, by a kind of real *tranſubſtantiation*, they are converted into the very ſubſtance of animal body; all its conſtituent parts, even the *bones* themſelves, being originally in a fluid ſtate.

UNDER ſuch circumſtances the conſtitution may not improperly be compared to the fabric of an edifice, the ſuperſtructure of which will frequently want repairs, when its foundation is bad and infirm.

HOWEVER opinions may differ reſpecting the preciſe manner by which *Digeſtion* is brought about, it is certain that the *Stomach*, like the Heart and other vital parts, derives its principal power and energy from the *nerves*; for, when *thoſe with which it is ſupplied are cut or injured, both Appetite and Digeſtion are ſuddenly deſtroyed.*

SECT.

SECT. III.

The SYMPATHY *and communication of the* STOMACH *with other parts of the body, and their mutual affections thence arising.*

THE Stomach, as already obferved, being the great fource of nutriment, and amply fupplied with nerves, the inftruments of all fenfation, holds a twofold intercourfe with every part of the body; firft, by the conveyance of Chyle into the blood; fecondly, by *nervous fympathy*, from which its impreffions are communicated to the brain and other parts, giving it extenfive and extraordinary influence over the whole corporeal fyftem; infomuch that there are few *chronic difeafes* in which the *ftomach and bowels* are not affected. Accordingly we find, that, whenever the body is invaded by any morbid caufe, or the mind oppreffed with forrow, the ftomach immediately feels their malignant power. It then neither craves

craves nor can dispense with its usual food; both appetite and digestion suddenly cease; nausea and sickness succeed, and its contents are rejected; and, as it is thus affected at the attack of a disease, so the first signs of convalescence are usually attended with a return of appetite and digestion.

UPON the state and condition of this organ, therefore, in a great measure depends the *health and well-being of the animal body*, and also the efficacy of such medicinal substances as may be found necessary to relieve its maladies; for, here their power is first exerted; and, although some of those may pervade the system, as *Alteratives*, and act in a manner peculiar to their own nature; their operation will be considerably diversified according to the degree of *sensibility* and *irratibility* existing in the *stomach*, as intimately connected with the general habit; a circumstance, which, in the treatment of diseases, has not always been sufficiently attended to.

THE

THE ſtrength and weakneſs of the animal body, and the regularity of its functions, particularly thoſe of the ſtomach, ſeem principally to depend upon the *nervous power*, which is increaſed or diminiſhed from various accidental cauſes: Thus, pure, freſh air, the chalybeate waters, and cold bath which brace the ſolids, add greatly to bodily ſtrength; and wine or warm cordial liquors, by invigorating the ſtomach for a time, not only communicate ſtrength to the body, but fortitude to the mind, by increaſing the nervous power. On the contrary, a putrid, inelaſtic, moiſt air; long faſting, grief, or intenſe ſtudy, are found to diminiſh bodily ſtrength, to *impair Digeſtion*, and lay the foundation of *chronic diſeaſes*, hereafter to be treated of; and which could not have been ſo well underſtoood without this previous knowledge of the very ſource whence they originate.

FOR a particular proof of the more general and immediate communication of the ſtomach with other parts, may be mentioned that tormenting

tormenting pain the *tooth-ache*, which has frequently been relieved by a large dose of *opium*, taken into the stomach, before it could enter the blood, or arrive at the part affected by the common road of circulation. The trembling hand of a hard drinker presently becomes more steady, for a time, after taking a cordial dram, merely by touching and invigorating the nerves of the stomach; and, on the contrary, the subtle and insidious power of the *lauro-cerase water* is destructive to animal life, in a few moments! As violent affections of the mind will disorder the stomach, so a morbid state of that organ will mutually affect the mind and occasion languor, hypochondriacal complaints, low spirits, and melancholy.

THE Brain and mental faculties are observed to suffer from injuries of the stomach, and *vice versâ*; for, a violent blow on the head, or concussion of the brain, will excite that convulsive motion of the stomach called vomiting; and a profusion of bile, or other offending grose humours in the stomach will occasion giddiness and head-ache.

So

So great is the ſympathy between the head and ſtomach, that it is difficult to know which was originally affected, although an improper diſtinction, on ſuch occaſions, might be attended with the moſt dangerous conſequences; for example, ſhould a bliſter be applied to the head when only affected by ſympathy from bile at the ſtomach; or ſhould an *emetic* be adminiſtered when the patient is ſeiſed with vomiting from inflammation of the brain; the firſt would occaſion unneceſſary pain, and the laſt, by ſtraining the body and overcharging the inflamed veſſels of the head, might produce *delirium*, *apoplexy*, and *death*.

THE better to make a true diſtinction in ſuch caſes, it will be proper to obſerve *whether* the *head* or *ſtomach* was *firſt affected*; for, thence may beſt be known the original ſeat of the diſeaſe.

THERE is alſo a manifeſt conſent between the ſtomach and ſkin; for, an eruption on its ſurface, like the *nettle-raſh*, after eating *muſcles*,

muſhrooms,

mushrooms, or other noxious substances, has often been observed to terminate their bad effect. Besides, when the pores of the skin have been obstructed, or, in other words, when the patient has taken cold; the perspirable vapor, which ought to have been carried off from the surface of the body, by falling on the internal parts, occasion flatulence, pinchings in the bowels, colic pains, or a diarrhœa; and the same bad effect is the consequence of exposing the body to easterly winds, or a stream of cold, damp air.

SUCH *Sympathetic Disorders* of the stomach and bowels from obstructed perspiration, are most effectually relieved by external application, namely, the warm bath, flesh-brush, plentiful dilution, opiates, and wearing flannels next the skin.

THE stomach also communicates with the *liver* and *kidneys*; for, the stone and gravel frequently produce *vomiting*, and a profusion of bile, which can only be removed by attending to their cause.

A REMARKABLE degree of ſympathy alſo prevails between the ſtomach and uterus; for, women after conception are often viſited with ſickneſs, or vomiting; and the violent efforts of labour-pains have the ſame effect.

FROM what has been ſaid, it follows, that ſuch is the intercourſe between the body and mind, and ſo great the ſympathy of the ſtomach with different parts of the corporeal ſyſtem, that they alternately communicate their ſenſations to each other. Thus, local diſorders of that organ, will at length affect the whole conſtitution, and produce *chronic diſeaſes*, in conſequence of *indigeſtion*, and *crude chyle*, by which the blood is impoveriſhed and rendered unfit for nouriſhment; hence, the *gout* and *ſcurvy*, a *dropſy*, or *conſumption*.

ON the contrary, although the ſtomach had previouſly been in a ſound ſtate; ſhould the mind become deeply impreſſed with *grief*, or the

the *vital parts* attacked by *gouty*, *ſcrophulous*, *venereal*, or *ſcorbutic* matter; both *appetite* and *digeſtion* fail; pain, ſickneſs and vomiting are brought on, and oftentimes confuſion of ideas, loſs of memory, *dejection of ſpirits*, *melancholy*, and *deſpair*.

SUCH is the extreme ſenſibility of the *ſtomach*, eſpecially when diſordered or inflamed, that the ſkin when excoriated by a bliſter is not more exquiſitely tender; ſo that harſh irritating food, ſcarcely affecting the palate, will then produce violent pain, ſickneſs and vomiting.

BY the ſame exquiſite ſenſibility it is endowed with elective or inſtinctive power of chuſing whatever is grateful and beneficial to itſelf, or refuſing what is injurious to the conſtitution; and therefore, by ſome it is not improperly called the *conſcience of the body:* When the ſtomach ſays no, every morſel would be poiſon, and not nouriſhment; but, if it conſents or aſks for more, more may be ſafely taken. There are very few who have not ſome particular propenſity or averſion to certain kinds of food; cheeſe, honey, or other things

things of the like nature, which are agreeable to ſome, act on others with the violence of poiſons.

THUS, like a watchful centinel, the *ſtomach* gives warning, and denies admittance to what would be injurious, and often craves with avidity ſuch things as prove ſalutary. Hence, the eager thirſt for cold water in the height of a burning fever, which, being drank, has been known to terminate the diſeaſe and ſave the patient's life, after the power of medicine had been tried in vain.

PERHAPS it may be objected, that the *Stomach* is not its own ſufficient guide, becauſe it does not always diſcover the inſidious and deadly power of ſome *poiſons* till too late: but we might as well complain of dim and defective eyes, becauſe they do not as eaſily perceive a mote as a mountain; or ſince minute objects are more diſtinctly ſeen by the aſſiſtance of a microſcope than the naked eye.

IN

IN ſhort, what *Damocrates* ſays of the *womb*, viz. that it is an animal within an animal, might with more propriety be applied to the *ſtomach*; ſo faithful a monitor is that organ, and ſo truly wonderful its diſtinguiſhing faculty, whilſt it remains in its natural ſtate, and *uncorrupted* by *Intemperance*.

SECT. IV.

The nature, treatment, and cure, of idiopathic or primary diſeaſes of the STOMACH *and* BOWELS, *proceeding from* INTEMPERANCE, CULINARY POISONS, *the* ABUSE OF MEDICINES, *and other cauſes. With the neceſſary diſtinction between thoſe primary affections, and ſuch as are ſymptomatic or ſecondary.*

IN the preceding ſection of this Eſſay, the nature of Animal Digeſtion, and Sympathy of the Stomach with other parts of the body, have been amply conſidered, as a general Introduction to the treatment and cure of the various diſeaſes incident to the *abdominal Viſcera*;

among

among the firſt of which, thoſe prevailing maladies, *Loſs of Appetite and Indigeſtion* claim the firſt attention; for, whether they are ſimply *idiopathic* and *originally* ſeated in the ſtomach itſelf, or *ſymptomatically* produced by a *tranſlation of gouty matter*, *profuſion of bile*, or other acceſſary cauſes, they will occaſion Chronic Diſeaſes which cannot be effectually cured till theſe complaints, in the firſt paſſages, are previouſly taken away.

It would prevent many dangerous errors in medical practice, if ſuch Diſeaſes of the *Viſcera*, as are ſimply organical or *primary*, were truly diſtinguiſhed from others which are ſymptomatic or *ſecondary*, and ariſe from a *morbid ſtate of the conſtitution*; for, it is evident, that they muſt all originate from one of theſe two cauſes; which, though perfectly diſtinct in their nature, have, notwithſtanding, been frequently confounded with each other, or ſlightly paſſed over, without diſcrimination, as maladies requiring nearly the ſame method of treatment. I know it has been ſuggeſted by ſome authors, that the diſtinction here mentioned is not abſo-

lutely neceſſary; becauſe, as Indigeſtion may be owing to want of tone in the general habit, and communicated to the ſtomach; ſo the tone of the ſtomach reſtored, may be returned to the habit.

THIS ſeems a vague and exceptionable opinion, and ought to be adopted with great reſerve; for, it can only apply in caſes *where the ſolids are ſimply affected, and not in Diſeaſes proceeding from a vitiated ſtate of the fluids*; which, of all others, are the moſt dangerous and difficult of cure.

INDIGESTION ariſing from *ſimple weakneſs or relaxation*, cannot, with propriety, be treated in the ſame manner as when it proceeds from a *diſtempered blood*, and a tranſlation of *ſcrophulous or venereal matter* to the viſcera. In the firſt caſe, the diſeaſe might be relieved by *Tonics*, which brace the fibres, and give ſtrength to the vaſcular ſyſtem; but the laſt would require ſuch medicines as tend to ſubdue and evacuate the morbid juices from the

the conſtitution; conſequently, ſhould *Tonics* be directed in their ſtead, they would concentrate and lock up the offending matter, and probably deſtroy the patient: On the contrary, in the firſt caſe, the ſolid ſyſtem, which was too weak before, would ſtill become more relaxed and debilitated by a courſe of evacuating Medicines.

BY cloſe attention to the morbid changes produced in the living body, and what will be hereafter advanced on the preſent ſubject; I think it will become apparent, that *few Diſeaſes of the ſtomach are originally local, or inherent in that part*, as generally ſuppoſed; thoſe only excepted, which are occaſioned by *Intemperance, unwholſome Diet, culinary Poiſons,* or the abuſe of *ſtrong, draſtic Medicines*; more particularly, the *immoderate uſe of Mercury*, where the injury is immediately impreſſed upon the ſtomach itſelf.

IT appears ſtill more evident, that local imbecility of the ſtomach, conſidered as ſimply ſuch, is ſeldom the ſole cauſe of its morbid

 affection;

affection; when we observe the instant *loss of strength, appetite, and digestion,* from any sudden shock of the mind, as the arrival of bad news, or other circumstance of poignant and deep distress; when it is no sooner struck by the impression, than it instantly *becomes atonic.*

IN farther support of this opinion, may be adduced the effects of *Sea-sickness,* which, by mere motion disagreeably impressed upon the Brain and Nerves, and without any other previous change in the solids or fluids; at once deprives the stomach of its natural power, and produces intolerable *sickness* and *vomiting,* with universal loss of bodily strength.

THOSE two evident causes of morbid *sympathetic affection,* the one resulting from the body, the other from the mind, and where both are suddenly and manifestly produced, can be accounted for upon no other principle than *nervous influence,* from the want of which, the stomach as well as the whole corporeal system are deprived of their natural energy.

EXCESSIVE

EXCESSIVE *Flatulence*, or immenſe quantities of air diſcharged from the ſtomach, in thoſe of *bad Digeſtion*, particularly after *obſtructed perſpiration*, or *previous to a fit of the Gout*, though a common and very oppreſſive complaint, has not, as far as I know, been accounted for in a rational and ſatisfactory manner: This Symptom is not void of danger, as generally ſuppoſed, being frequently the forerunner of a *Tympanites*, or *Dropſy*, as I have, in two or three inſtances, obſerved. The air thus diſcharged, being much greater in quantity than what could poſſibly be contained in the aliment of the ſtomach, inclines me to think it may alſo proceed from another cauſe.

THE human body has two ſorts of veſſels opening into all its cavities; the firſt pour out a fluid to moiſten their contained parts, and are called *Exhalents*; the other imbibe ſuperfluous moiſture, and are called *Abſorbents*.

FLUIDS injected into the alimentary tube, by clyſters, are ſoon ſo perfectly abſorbed, that not the leaſt part of them is afterwards

 evacuated;

evacuated; from which it may reasonably be concluded, that in cases of excessive flatulence, *the air chiefly escapes from the orifices of the exhalent vessels; especially when rarefied by febrile heat, or set at liberty by a putrid dissolution of the blood.*

It appears by experiment, that animals in the exhausted receiver of the *Air-pump*, are sensibly relieved by voiding *particles of air* from the surface of their bodies. In order, therefore, to restore the balance between the external and internal air, so essential to the well-being of all animals, it is extremely probable there is a free communication between them; and that, when the external air is light, a due quantity of internal air escapes through the cutaneous pores, lest it should burst its vessels, for want of sufficient counter-pressure: On the contrary, when the external air suddenly becomes heavy, part of it finds admission into the blood, by the lungs, to preserve a due balance; and lest the body, by sustaining too much external pressure, should be destroyed.

THE

THE property of discharging air from *vegetables*, and again absorbing it, has been demonstrated by Dr. *Hales*; and, however new the opinion, if such it be, I see no reason why the same law of nature may not also obtain in *animal bodies*; for, if air was not discharged from the body, as well as admitted into it, the balance, between the internal and external air, could not be restored.

THAT *Air enters the blood in the Lungs*, that it combines with, and imparts to it a *florid colour*, is not matter of surmise or mere conjecture, but has lately been demonstrated in a satisfactory manner; and, in proportion to the purity of that fluid admitted into the blood, the countenance has been observed more or less *florid*; for, those of a pale and sickly aspect, from residing in the confined air of large, unwholsome cities, become fresh-coloured and ruddy by removing into the country, where they breathe a more pure, dephlogisticated atmosphere.

AIR, thus absorbed by the lungs, seems to be the vivifying principle which gives colour

to the blood, as well as life and animation to the whole ſyſtem, and is probably alſo the principal cauſe which *preſerves it from putrefaction*; for, it has been proved, that pure air not only enters the blood by the act of inſpiration, but that *impure* or *mephitic* air is diſcharged or expired: To which may be added, that contaminated vapour which eſcapes from the body with *perſpiration*, *urine*, and *ſtool*; ſtill farther tending to accompliſh the great purpoſe of nature, in preventing that corruption of the blood and juices which otherwiſe muſt have happened. So that, when we conſider the vaſt quantity of vapour, or perſpirable matter, continually breathed out by the Lungs, we ſhall have leſs occaſion to think the opinion of the antients exceptionable, who termed the lungs the chimney of the body.

INDEED it appears perfectly reaſonable and conſiſtent to ſuppoſe, that nothing paſſes into the animal body, but what, in due time, may paſs out of it again; and thus, by a continual acceſſion of new matter and the diſcharge of what was become uſeleſs, that *renovation* and

purity

purity of the blood is preserved, so necessary to its well-being.

WHENEVER *Flatulence* prevails in a very high degree, joined with loss of appetite and *Indigestion*, there is reason to apprehend some morbid cause; either *gouty matter* prevails in the habit, *putrid tendency* in the blood, or there is *defect in the natural secretions or excretions*, which, suffered to continue, might endanger the constitution.

IN the year 1789, I attended an elderly gentleman in Pall-mall, who was *gouty* and *dropsical*, and so grievously afflicted with *Flatulence* and oppression at his stomach, that, although the abdomen was enormously enlarged, complained he suffered more from wind in the stomach and bowels, than the watery swelling of his belly. He was always relieved by perspiration, and a flatulent discharge; but, becoming gradually weaker, was seized with fainting fits, and presently expired.

FARTHER to evince that *Flatulence often proceeds from the discharge of air by the exhalent vessels,*

ſels, as well as from the contents of the ſtomach; it is neceſſary to remark, in the above caſe, the patient took ſo little nouriſhment, that his ſtomach was generally empty: Alſo, that after taking cold, eſpecially in Autumn when perſpiration is inverted and turned upon the viſcera; exceſſive *Flatulence* always moſt prevails, without regard to the quantity or quality of food.

THE medicine, from which, I have obſerved the moſt immediate good effects, in ſuch caſes, was the *camphorated Mixture, with Hoffman's anodyne liquor, and tincture of opium*; but the relief given in this manner is only temporary: To render it permanent, regard muſt be had to the cauſes of the diſeaſe already aſſigned.

IT will be right, at all events, to keep the pores open, and the bowels gently laxative by the *aloetic pill*; leſt the confined air expanded by heat overſtrain their fibres and produce a *Tympanites*. If perſpiration be obſtructed, as it generally is; *antimonial tincture joined with that of opium, and added to the camphorated mixture*, will always be found of ſervice; and, even ſhould the caſe be *gouty*, will contribute to the patient's relief.

WHERE

WHERE putridity is ſuppoſed to prevail, a ſtrong infuſion of *Peruvian bark, with mineral acid, ſpiced claret, or Port wine* may be liberally adminiſtered as an *antiſeptic*, to ſtrengthen the ſolids, and confirm the texture of the blood; and, in caſes of the worſt kind, pimento, or ginger-tea may occaſionally be taken, but ſhould never be long continued.

THAT ſpecies of *Flatulence* occaſioned ſimply by *effervescence*, and the expanſion of airin food at the ſtomach, may be much relieved by abſtaining from fluids, and crude fermenting ſubſtances, eſpecially ſuch vegetables as largely contain it, of which kind are turnips, peas, beans, and other leguminous grain of the viſcid, tenacious kind, leavened or fermented bread, &c. inſtead of which ſea-biſcuit may be uſed; and wine, as well as all fermented liquors, ſhould be ſuperſeded by toaſt and water with a ſmall portion of French brandy.

THE Peruvian Bark, mineral acids, and aromatic bitters will leſſen the tendency to fermentation at the Stomach, and increaſe its tonic power. For this purpoſe, I have found nothing

nothing better than the following ſimple Medicine, viz. flowers of Sulphur with conſerve of orange-peel, made into an electuary, with ſyrup of ginger; of which the quantity of a nutmeg may be taken as occaſion requires. It generally opens the bowels, and ſeems to retard fermentation, from the *Acid* largely contained in the Sulphur.

NOTHING will ſo much accelerate Fermentation and increaſe flatulent ſwelling of the Stomach, as *Air* and *Moiſture* put in motion by febrile *Heat*, eſpecially when the body is coſtive; therefore, thoſe who are affected with that oppreſſive diſorder, ſhould endeavour to avoid this combination of cauſes by which it is chiefly produced.

FROM the preceding obſervations, on the diſtinction between *organical* Diſeaſes, and thoſe which are *ſymptomatic*; the method of cure will become obvious; namely, to remove, if poſſible, the immediate cauſe locally impreſſed on the ſtomach; or thoſe more remote, which

universally affect the constitution; and which are communicated to it by *sympathy*, or the mediation of the nerves.

THE first of those intentions is often as much in the patients power, as that of the most skilful Physician; at least, without his concurrence and prudent caution, the best advice will little avail: But, in the last, when the *blood is contaminated by a morbid cause*, and the general habit affected; almost every thing depends upon the judicious administration of effectual Remedies. In this and the following Section, therefore, the *nature*, *treatment*, and *cure* of those Maladies will be more particularly specified and explained.

THE *Stomach* and *Bowels*, being endowed with exquisite sensibility, are liable to many disorders from the very nature of their office, by Intemperance or errors in Diet; for, the aliment constantly passing through them may offend, either by its excess of quantity, or bad quality; the first will overstrain their fibres, and create pain and oppression; the last may

may wound or corrode their tender nervous lining, and occafion *colic pains*, *inflammation*, *convulfions*, *a mortification*, and fometimes death itfelf.

INDIGESTION is fo frequent a malady in this country, particularly in great cities, that it may be deemed *endemial in Britain*; whofe inhabitants, from its infular fituation, are expofed to all the viciffitudes of heat and cold, moifture and drynefs, in a fhort period of time. But it may alfo be owing to other *adventitious caufes* common to all places, viz. to errors in Diet; the unwholefome occupations of fome; the fedentary life of others; and anxiety of mind attending the eager purfuits of bufinefs.

THERE is a kind of conftitution in the mind as well as the body; nor can either fuftain violence, beyond a certain degree, without injury, according to the natural fenfibility exifting in the one or other. Thofe moving in a high and public fphere of life, who are plagued with honours and perfecuted with folicitations; who are obliged to diffemble their feelings, and live,

as

as it were, at variance with themſelves; alſo experience in their health the bad conſequence of diſappointed ambition, and ſuch vexations and viciſſitudes as are inſeparable from human affairs.

Loss *of Appetite and Indigeſtion* ſometimes ariſe from relaxation or local imbecility of the Stomach, and none are more ſubject to ſuch complaints than thoſe who lead a ſedentary, monaſtic life, and are intemperate in eating and drinking. Under ſuch circumſtances the *ingeſta* will be imperfectly ſubdued, and, the quantity taken into the body being more than equal to its conſumption; a bloated, anaſarcous habit will enſue; particularly, as the natural excretions, for want of ſufficient exerciſe, will be unduly performed: Hence, the ſolids being daily more diſtended by the weight of the redundant fluids; the balance, which ought to be preſerved between thoſe two powers, will be deſtroyed, and the body daily decline from its uſual ſtrength and vigour.

WHEN

WHEN the ſtomach is repeatedly overcharged with full meals of animal food, it will loſe its natural tone by ſuch frequent plenitude and over diſtenſion; and its contents being indigeſted, the chyle obtained from it will be crude, impure, and inſufficiently elaborated. The ſeveral ſecretions being alſo unduly performed, a foundation will be laid for *chronic Diſeaſes*, eſpecially the *gout* and *ſcurvy*, a *dropſy*, and *hypochondriacal diſorders*; ſo that one train of evils leads on to another; but if they are not the effect of a bad conſtitution, but of that indiſcretion which tends to make it ſo; their cure is not to be ſought for in the uſe of medicines, but in *moderation* and *Temperance*. Let the patient take leſs Food and more Exerciſe, and he will not want a Phyſician.

FROM whatever cauſe the Stomach is deprived of its natural, digeſtive faculty, it may be laid down as a general rule, that ſpare diet and *abſtinence* from ſolid, animal food will afford relief. By ſuch means, the patient will avoid the inconvenience of ſleepineſs, palpitations of the heart, fluſhings in the face, with hectic fever,

and

and other ſymptoms after eating, ſo oppreſſive to the weak and infirm. But there will be leſs occaſion to inforce the neceſſity of ſuch regimen, as the ſtomach is its own ſufficient guide, and at ſuch times, nauſeates all animal ſubſtances.

THE propriety of ſpare Diet will appear more particularly neceſſary for ſuch invalids, as they generally uſe leſs exerciſe and perſpire leſs than others. Their ſolids are alſo more lax, and conſequently their digeſtion is weaker.

IF the patient after eating is much oppreſſed, ſleepy, and affected with internal throbbing about the region of the heart; in a word, if his body and mind are leſs vigorous and fit for action than before, he has then exceeded the proper *quantity* of food, and ſhould take care to ſubtract from it at the next meal.

How far the *qualities* of *Aliment* are of conſequence to health, may be evidently ſeen in the moſt dreadful of all human calamities, a *Famine*, which is frequently followed by the *Plague*,

from the extreme ſcarcity of wholeſome food which then unfortunately happens.

As the animal juices are accumulated by nouriſhment and reſt, and conſumed by abſtinence and motion; it is a circumſtance of the higheſt importance to proportion them duly, that a juſt and natural balance may be preſerved between the ſolids and fluids.

INTEMPERANCE impairs the memory, deſtroys the diſtinct exerciſe of the reaſoning faculties, and renders the mind leſs fit for ſtudy or deep meditation. When the quantity of food is too great, the veſſels will be overloaded and the body oppreſſed; if too ſmall, it will waſte and decline; ſo that either very high or low living will injure health; but of the two extremes, the firſt is much more common and productive of greateſt injury; ſince many who live intemperately are prematurely cut off by *Apoplexies*, or other violent diſeaſes; and, on the contrary, the ſeveral inſtances of *Longevity* are chiefly to be found among thoſe who live on ſpare and ſimple diet.

In fixing a ſtandard for *Temperance*, our own feelings, or even the Cuſtom of certain places, would be very inſufficient guides: We ſhould rather obſerve in what degree of vigour and perfection, animal life is ſupported among the poor, who uſe ſimple fare, and live in a manner conformable to nature.

If many of the Iriſh, with only *milk* and *potatoes* for their food, perfectly exerciſe all the faculties of body and mind; and whole Nations in the eaſt, ſubſiſt wholly on *Rice* and *Vegetables*, yet live long and healthy; it will thence appear, that in this country, we might ſubtract largely from our full animal diet with great advantages to the conſtitution.

The Regimen of Diet ſhould not only be adapted to particular ſexes and ages, but alſo to the nature of climate and degree of the patients exerciſe: General Rules muſt therefore have their particular exceptions according to the different conſtitutions for which they were directed.

VEGETABLE *food* is leſs nouriſhing and more flatulent than that of the *animal kind*, but it reſiſts putrefaction and is moſt proper during the ſummer heats, eſpecially for thoſe of ſtrong fibres, and ſcorbutic, bilious habits.

QUADRUPEDS living on fleſh are generally fierce in their nature, and the exhalation of their bodies is rank and offenſive; whereas animals feeding on herbage are much more gentle, their breath is ſweet, and their excrement almoſt inodorous.

HENCE it appears, that much animal food is unwholeſome, eſpecially towards *Autumn*, in warm, moiſt weather, when the fluids tend to putrefaction; for, it will load the body with *rancid humours*, taint the ſweetneſs of the breath, render the ſeveral diſcharges more offenſive, and *diſpoſe it to diſeaſes of the putrid kind*; which may beſt be prevented or cured by *vegetable, aceſcent* Diet, abſtinence from fermented liquors, and the liberal uſe of pure water, with freſh orange-juice, or a ſolution of the cryſtals of Tartar, called *imperial water*.

How

How far the human conſtitution may be changed for the better by vegetable diet, is evident in thoſe who have been cured of *inveterate Scurvies* by the plentiful uſe of *freſh vegetables*, and *pure water*, without any other aſſiſtance; and inſtances are not wanting, where even the iraſcible paſſions have been, in a great meaſure, ſubdued by the ſame means.

ARETÆUS mentions the cure of *Leproſy* by total abſtinence from animal food, and the conſtant uſe of vegetables, in thoſe afflicted with that loathſome diſeaſe; who, from fear of infection, had been abandoned by ſociety, and driven out into a deſert.

HE who means to be a *rational Epicure*, and to exalt the pleaſure of eating beyond the reach of a ſenſualiſt, ſhould eat with *ſimplicity* and *moderation*, for then only, he *will taſte with the palate of nature*. If rich ſauces, and high-ſeaſoned diſhes are grateful to ſome; they do not poſſeſs a natural appetite, but that which is depraved; for, children and young

people diſreliſh all ſuch aliment, and never grow fond of it, till their taſte is vitiated by habit and bad example.

THUS, when the food and palate are both in their natural ſtate, the reliſh is high, and the body duly nouriſhed; but when, by the arts of compound cookery, the firſt is deprived of its ſoft, balmy quality, and rendered almoſt *cauſtic* by ſalt, cayan-pepper, and other high ſeaſonings, they ſtimulate the languid appetite, turn round the wheels of life too rapidly, and *wear out the body before its time.* Whereas, thoſe who abſtain from much wine, ſpirituous liquors, or hot ſpicy aliment, acquire an exquiſite degree of delicacy in the ſenſe of taſting; their ſpirits are more equal, their feelings more pleaſurable, and in general they are *much longer lived.*

IF the qualities and taſte which things naturally poſſeſs are right and good in themſelves, thoſe communicated to them by the too officious hand of art, muſt ſurely be wrong. The cool, refreſhing *Melon,* a native of ſcorching climates,

climates, intended to quench thirſt and abate heat, is often robbed of its genuine properties by a profuſion of pepper; and *acid fruits*, which would ſtrengthen the ſtomach and reſiſt *autumnal putrefaction*, are loſt in the taſte of ſugar.

THUS the beneficent ſimplicity of Nature is ſuperſeded by *Cuſtom*, which luxury, not propriety, has introduced; for, it muſt be confeſſed with regret, that in the affairs of human life, many are more guided by their paſſions and the example of others, than by reaſon or their own underſtanding.

THE *good effects of Temperance are acknowledged by all, but duly regarded by few.*

THE ſtate and condition of the Stomach may beſt be known from the appearance of the *Tongue*; for, both are inveſted with the ſame fine mucous membrane; ſo that when the laſt is freſh, florid and moiſt; appetite and digeſtion remain unimpaired; but, on the contrary, when the tongue becomes dry, diſcoloured,

 and

and coated with mucus, attended with thirſt and a feveriſh breath; the ſtomach, as well as the lungs are then diſordered.

As *loſs of Appetite* is uſually attended with nauſea, or loathing of food; ſo *Indigeſtion* is accompanied with Flatulence and oppreſſion, a bitter and diſagreeable, *rancid* taſte in the mouth partaking of the food; ſour *eructation*, with heart-burn, fluſhing in the face, and a ſlow *hectic fever*.

IN thoſe of weak appetite and bad digeſtion, who live chiefly on *vegetable diet*; a *redundant acid* at the ſtomach frequently prevails, with exceſſive flatulence, *cardialgia*, or heart-burn. To remedy this inconvenience, it will be proper for the patient to increaſe the quantity of animal food, and to indulge moderately with things of a warm, alkaleſcent nature, ſuch as horſe-radiſh, muſtard, &c. Inſtead of wine or malt-liquors; pure water, with a ſmall portion of brandy, without ſugar, will be leſs apt to ferment and occaſion wind. This regimen, however, ſhould be purſued with caution; for, a total

total abſtinence from vegetables, and the too liberal uſe of animal food, would diſpoſe the fluids to a dangerous ſtate of putrefaction; therefore, the moſt wholeſome diet will be found in a *due proportion of animal and vegetable ſubſtances*, which may be varied occaſionally, according to the nature of circumſtances.

A moderate quantity of ſalt, taken with our food, ſeems neceſſary to promote digeſtion; for, although according to the experiments of *Sir John Pringle*, one dram of ſalt in two ounces of water preſerved fleſh ſweet twenty hours longer than pure water; he found, *that fleſh, with from five to ten grains of ſea-ſalt, putrified ſooner than the ſame quantity infuſed in water only*; conſequently, as ſalt is never taken with food beyond the corrupting quantity mentioned in the experiment; it appears neceſſary to digeſtion; for then it manifeſtly acts by its *ſeptic power*, and will haſten the diſſolution of animal ſubſtances.

A freſh ſupply of food, before the laſt meal is evacuated from the ſtomach, or whilſt any of

of its indigested *four leaven* there remains, is highly pernicious; since it would soon *excite fermentation in the next aliment and convert it into its own acid nature,* creating flatulence and heart-burn.

In such cases it will be proper to wash the stomach with a weak infusion of mustard seed; and, after giving a dram or more of *calcined Magnesia* as a laxative, to diminish the quantity of food, and to take it the oftner.

In a *natural and healthy state of the constitution, Acids are not supposed to enter the blood.* They seem not to extend their influence farther than the stomach; for, when they have passed into the intestinal canal, by meeting and mixing with the *Bile* they are *neutralized and subdued*; but, if at any time they pass unchanged into the blood, that will be most likely to happen when they too much abound, without a sufficient quantity of Bile to decompose, and correct them.

SHOULD

SHOULD ſuch caſes occur, which indeed are rare and uncommon; the *lixivium of Tartar* in freſh whey, which would paſs freely into the blood, might probably be found an effectual Remedy. The only inſtance of ſuch a caſe which I have ever met with, was that of a gentleman at Hull, who lately applied to me for advice, in what he called a *ſour Sweat*, which he aſſured me was as evident to the ſmell as vinegar, or ſour ſmall-beer. I adviſed him to take the above lixiviated whey, which in a ſhort time removed his complaint, with many other *chronic ailments* under which he laboured, proceeding, as he ſuppoſed, from *acidity in the blood*; having by the direction of his Apothecary, to relieve a ſcorbutic diſorder, eat three or four *Lemons* every day, for a conſiderable time, with large quantities of *Vinegar* and other acids.

THERE are three Articles by which the Stomach and Bowels may be materially affected, namely, *Tea*, *Coffee*, and *Tobacco*; the proper-

ties

ties of which we ſhall therefore conſider, eſpecially the two firſt, as they make a conſiderable part of our daily ſuſtenance.

ABOUT a century ago, *Bentikoe*, a Dutch Phyſician, beſtowed extravagant encomiums on the uſe of *Tea*, but, like a true medical enthuſiaſt, he erred in the extreme; for, with him, it was good for every thing; although daily experience ſhews it pernicious to people of *lax ſolids and weak Nerves.* The internal *tremor* which it often occaſions, eſpecially *gunpowder Tea*, and the *imperial or high-flavoured green*; with its remarkable effect of *preventing ſleep*, ſhew that it makes ſome peculiar impreſſion on the nervous ſyſtem, by its *fragrant Odour*, in which its pernicious quality ſeems to reſide; for, when that is diſſipated by a boiling heat, no ſuch effect is found to follow.

FOR this reaſon, probably, the *Chineſe* prefer a *decoction to an infuſion of Tea*; and that they avoid its uſe till it has been kept one year. We are informed, that, in its recent ſtate, it is endowed with a *narcotic* or intoxicating quality.
This

This is verified by the experience of thoſe who are employed in mixing large quantities of Tea, in cloſe rooms, where the air is confined; being often ſeized with faintneſs, giddineſs, and head-ache.

BOERHAAVE, and ſome others, ſuppoſed that the bad effects of *green Tea* were owing to its having been dried on hot plates of *copper*; for, as all metals, heated to a certain degree, throw off their metallic effluvia, it was reaſonable to ſuppoſe, Tea thus manufactured, would be ſtrongly impregnated with copper, the effects of which are known to be highly pernicious to the human body. Some even went ſo far as to imagine its fine colour was occaſioned by *verdegris*, a preparation from copper; but, by experiments made on fine bloom teas, with *volatile alkali*, not the leaſt ſign of ſuch poiſonous adulteration appeared.

ALL *nervous Diſorders* are certainly aggravated by the uſe of tea; and it is equally unfit for *children* and thoſe of lax fibres, eſpecially the firſt, whoſe fluids bear a much larger proportion

portion to the ſolids of the body than in adults, for whom it is more proper; eſpecially thoſe of a warm, ſanguineous temperament. Green Tea is mildly *aſtringent*, by which the relaxing power of warm water is corrected; conſequently, weak Tea drank too hot, will enervate; and, if very ſtrong, it may prove equally pernicious by affecting the Head or Stomach.

WE are informed there is only *one ſpecies of the Tea-Tree** which is an ever green, and that the apparent difference of its leaf is owing to culture, its age when gathered, and the manner of being cured or prepared for uſe.' My friend Dr. *Spink*, of Bombay, informed me, that the *Padrae ſouchong-Tea* is much ſuperior to all the reſt in ſmell and fine flavour; the leaf is of a greeniſh yellow hue, but larger and more unfolded than that of the common ſort; it is very ſcarce, and rarely brought to England, except as a valuable Preſent; it was uſed by the Jeſuits, and is chiefly exported to Ruſſia by Caravans.

* An elegant delineation, and accurate definition, of the Tea-tree, may be ſeen in Dr. Lettſom's Treatiſe on that ſubject.

THERE

THERE are ſome apparent inconſiſtencies advanced by authors who have written on this ſubject: By one we are told, that green-Tea is mildly *aſtringent*; by another, that it is *relaxing*. Some ſay it is *narcotic*, and procures ſleep; others contend, that, taken before bed-time, it aſſuredly prevents it. This laſt effect I think may be accounted for; ſince I have frequently obſerved very ſmall doſes of *Opium* act in the ſame manner; neither can it appear ſtrange that the ſame thing ſhould operate differently upon different bodies, as their Nerves are ſtrung to different ſenſations.

UPON the whole, Tea, like other things, *derives its value from its proper uſe*, and is good or bad according to the ſtate and condition of the patient's conſtitution; and, to determine this, he ſhould rather conſult the feelings of his ſtomach than the opinion of a Phyſician; for that will beſt inform him whether it be right to take it or let it alone.

WHEN it is drank in moderation, and *not too warm*, with a large addition of milk, and lit-

tle

tle ſugar; I believe, it will ſeldom prove hurtful, but, on the contrary, *ſalutary:* After ſtudy or fatigue, it is a moſt refreſhing and *grateful Repaſt*; it quenches thirſt and chears the ſpirits, without heating the blood; and the pleaſing ſociety, in which we ſo often partake of it, is no inconſiderable addition to its value; for, whatever affords rational pleaſure to the mind, will always contribute to bodily Health.

COFFEE is the fruit or berry of a ſmall evergreen Tree, growing ſpontaneouſly in *Arabia*, but is now cultivated in the Eaſt and Weſt Indies: The firſt ſort is the beſt, and may be diſtinguiſhed from the other, being ſmaller and of a darker, yellow colour. The flower is exquiſitely fragrant, like that of the Arabian Jeſſamine, of which it ſeems a ſpecies, and the fruit is like a cherry, including the berry in a pulpy ſubſtance.

THE opinion of a late Author, that *Coffee* and *Tea* are of the ſame quality, has no juſt foundation; being not a little diſſimilar in their nature and effects.

IN

In thoſe of lax fibres and cold phlegmatic conſtitutions, Coffee will certainly be found more beneficial than Tea, being more warm and aromatic. It ſtrengthens the ſtomach, aſſiſts digeſtion, and being grateful to the brain and nerves, is therefore called *cæphalic*; but, on the contrary, with ſuch as are of a dry, ſanguineous habit of body, it is leſs proper. Being uſually taken in ſmaller quantities than tea, it does not like that relax the ſolids, dilute the fluids, or promote perſpiration and urine; but excites thirſt, heats the blood, and renders the body coſtive. So great and eſſential is the difference between Coffee and Tea, of which daily experience, from our own feelings, affords the moſt ample teſtimony.

The prejudices, however, of *Simon Pauli*, againſt the uſe of Coffee, are not more to be regarded than his erroneous opinion of Tea; for, he ſtrenuouſly contended, that this oriental vegetable was preciſely of the ſame ſpecies as the *Myrtus Brabantica* indigenous in Brabant, and by ſome called Dutch Myrtle. In the

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north of England it is called *Gale*, and may be found in large quantities contiguous to the *Lake of Keswick*, and in the moſſes near *Carliſle*. It has a very powerful and grateful ſmell, in the evening particularly, filling the air with ſo much fragrant odor as to be perceived at a great diſtance.

We are next to ſpecify the qualities of that *narcotic weed*, *Tobacco*, originally uſed by the Indian ſavages, in ſmoking, to procure ſleep and abate the ſenſe of toil.

It is not our buſineſs to enquire how far *Tobacco*, as an article of commerce, may become beneficial to trade, or increaſe the public revenue; but in what degree it may found injurious to the human conſtitution, as a reaſon for prohibiting its uſe. But, ſhould the firſt conſideration be ſeriouſly regarded; an *impoſt* upon bruſh-wood imported from the American thickets, *by way of commutation-tax*, would do as well for the ſervice of government, and ſave the Britiſh ſubjects from the danger of being poiſoned.

We are informed, that the Indian Priests used the fumes of Tobacco until they became intoxicated, and as it were in an extasy, the better to prepare them for giving responses to their tribes, respecting the events of war, and on other weighty occasions.

The Indians poison their arrows with the *oil of Tobacco* which, infused into a fresh wound, occasions sickness and vomiting, or convulsions and death; with what safety, setting aside propriety, the subtile powder of this plant, called *Snuff*, may be applied to the tender, internal surface of the nose, it may be proper to enquire; for, if the oil of Tobacco is a mortal poison when applied to the open vessels of a wound; surely this plant when taken in substance, as Snuff, must in a certain degree be injurious. From the infinite number of nerves diffused over the mucous membrane of the nose, it is endowed with exquisite feeling; and, the better to preserve the sense of smelling, those nerves are continually lubricated with moisture.

BY the almoſt cauſtic acrimony of Snuff, this moiſture is dried up, and thoſe fine, delicate nerves, the organs of ſmelling, are rendered callous and inſenſible. To this ſelf-evident, bad effect may be added the *narcotic* or ſtupifying power of Tobacco, by which not only the Brain and Nerves are injured, but alſo the Eyes depending upon their influence, together with the ſenſe of ſmelling; and, from the force with which ſnuff is uſually drawn up the noſe, its paſſage will be obſtructed, and the voice loſe its clearneſs and diſtinct articulation.

BESIDES thoſe pernicious qualities, Snuff often involuntarily deſcends into the ſtomach, creating nauſea, loſs of appetite and vomiting; and by its narcotic power will *diminiſh nervous influence* and impair digeſtion; it diſcolours the ſkin contiguous to the noſe, and will taint the ſweeteſt breath with the rank odor of a tobacco-caſk. For this reaſon the Ladies of faſhion in France, ſeldom take ſnuff till they are married; a very high compliment, no doubt, to their huſbands.

THE

THE only advantage of taking Snuff, is that of *sneezing*, which, in sluggish, phlegmatic habits, will give universal concussion to the body, and promote a more free circulation of the blood; but of this benefit, snuff-takers are deprived, from being familiar with its use.

WE have been told, that Tobacco, when *chewed*, is a preservative against hunger; but, this is a *vulgar error*; for, in reality, it may more properly be said to *destroy appetite by the profuse discharge of saliva* which has already been considered as a powerful, dissolving fluid essential both to Appetite and Digestion.

IN *smoking*, the fumes of Tobacco induce a kind of *pleasing insensibility* not easily described. Its *narcotic odor*, thus administered, equally infatuates the ignorant savage and the intelligent philosopher; but, by the large expence of saliva thereby occasioned, it is productive of many disorders of the head and stomach, particularly the last.

IN describing the qualities of *Saliva* and *Bile*, we remarked, that these fluids have been experimentally found to *correct acidity in the stomach and to retard fermentation*; consequently, they prevent cardialgia or heartburn and *flatulency*. If therefore a certain quantity of *Saliva* be necessary to increase Appetite and promote Digestion, surely, the want of it must be detrimental to both.

SEVERAL years ago, Dr. *Robinson* published a pamphlet whimsically entitled a Treatise on the virtues of a *Crust of Bread*; but with more propriety he might have called it a treatise on the nature and qualities of *Saliva*; for, in it he has satisfactorily proved, that the large quantity of that saponaceous, *dissolving Menstruum* secreted in the mouth, by chewing a hard crust of bread before dinner, and swallowed into the stomach, will certainly create appetite and promote digestion: The diminution of those faculties, are not the only injuries brought on by *smoking Tobacco*; its *narcotic* fumes will stupify the Brain, and *deaden the invigorating power of the nerves upon the whole bodily system*.

FROM

FROM these preceding facts, this practical inference will follow, viz. that the injury sustained by the use of Tobacco, will always be *proportionate to the loss of saliva,* and its *narcotic power upon the nerves*; consequently, *chewing* this vegetable, as it is the most *sordid,* so it is the most *injurious* method of using it; for, by its pungency in the mouth, much saliva will be secreted, part of which will be rejected by spitting, and the rest, strongly impregnated with its pernicious qualities, will be swallowed into the stomach, where, like all other narcotics, it will impair the tone and *suspend the digestive power* of that Organ. But, as this custom chiefly prevails among the vulgar, upon whom friendly admonitions are too frequently thrown away; I shall say little more on the subject; well knowing the great difficulty of eradicating prejudice from ignorant minds, though a circumstance much to be regretted.

TOBACCO ſmoke will kill muſquitoes, flies, and other inſects, and when applied to a naked nerve in the *tooth ache*, though it alſo acts by its pungency, chiefly removes pain by its narcotic power.

THE deſire of Tobacco, in thoſe accuſtomed to it, is ſo inſuperable, that rather than forego its uſe, they would part with half their food. Their propenſity to it is equally prevalent with that of *Dram-drinkers* to ſpirituous liquors, without which, however pernicious, they become languid and debilitated, and are affected with nervous tremor.

To adopt what is pleaſurable to our feelings or ſubſervient to uſe, cannot be thought ſtrange; but, that a rank weed, at firſt hateful to the taſte, and hurtful to the conſtitution, ſhould, by habit become deſirable, and univerſally prevail throughout Europe, is a circumſtance the moſt extraordinary, affording one ſtriking inſtance among many, of the folly and infatuation of the human mind; and the force and prevalence of Cuſtom oppoſed to Senſe and Nature.

INDEED,

INDEED, there is nothing ſo completely abſurd, to which Faſhion will not lend its temporary ſanction, and ſtamp with the idea of excellence. Was this *Proteus-like* being only regulated by elegance or utility, it might be worth imitation; but often it is unconnected with either, and ever capriciouſly ſhifting from one extreme to another. It prevails for a time with *epidemic rage*, and governs both the rich and poor; 'tis, nevertheleſs, a phantom, — the Idol of fools! a creature of to-day and to-morrow, having no permanent exiſtence, and ſeldom any value but what it accidentally borrows from time and place: The weak-minded obſequiouſly follow its fantaſtic extremes, and worſhip it as their chiefeſt good; but thoſe who diſtinguiſh better adopt it with moderation, to avoid the inconvenience of being ſingular.

BUT, of all the evils which exert their baneful influence over the Stomach, none is ſo pernicious in its conſequences as the *immoderate uſe of Spirituous Liquors*. Like *liquid fire*, they will harden and contract its fibres, and, as it were,

were, cauterise and crisp up its tender, nervous lining; at once destroying both feeling and appetite, and rendering it a mere *Borachio* or leather bottle.

FOR this reason, those addicted to the pernicious habit of dram-drinking, are always complaining of a *cold stomach*, which, in fact, is rendered such by the very means they preposterously use to prevent it, and constantly repeat, to the slow, but sure destruction of their constitution.

BESIDES these bad effects of spirituous liquors, they harden animal food and render it indigestible. From the same heating power they contract the glands, coagulate their juices, and rob the stomach of its natural moisture, which, like the *Saliva*, is essentially necessary to promote Digestion.

BY such means, the *faculties* of the body and mind are injured, and at last destroyed; for, those who indulge in this pernicious gratification, soon lose their appetite, and are constantly troubled with *sickness at stomach* and *sinking of spirits*. — *Loss of memory*,

memory, confusion of ideas, and nervous tremor, are also its sad and certain consequences. In hot climates, *spirituous Liquors* produce frenzy; in cold ones, stupidity and abolition of the senses.

IN those who have died from the abuse of spirituous liquors; the *Liver*, *Spleen*, and abdominal viscera in general were found preternaturally hardened, and rendered as it were *coriaceous*, like leather. Excessive dram-drinkers are prematurely cut off by *consumptions*, *dropsy*, *asthma*, or *apoplexy*. But a circumstance the most extraordinary, is no less true, viz. the several parts of the body, even the very *bones are rendered inflammable* by the immoderate use of spirituous liquors; as appears from a case communicated by Mr. Wilmor to the Royal Society, of which the following is a short abstract, A. D. 1772. "A woman, who, for many months before, had swallowed from half a pint to a quart of rum, or aniseed-water every day, was accidentally burnt to death, at Coventry; though the fire in the grate had been small, and the furniture suffered but little, the greatest part of her body was consumed, and even the bones were completely calcined."

As

As many Diseases of the *Stomach and Bowels* originate from obscure and unsuspected causes, so they are frequently overlooked, or imputed to some fault of the constitution; such are those proceeding from *culinary Poisons*; the *adulteration of Aliment*, or the *abuse of drastic, violent Medicines*; and indeed, considering the innumerable and invisible avenues to the approach of Diseases and Death; with the infinite number, and complex structure of those parts which form the human body; instead of sometimes extending our existence to a hundred years, it is matter of astonishment, that we continue to survive beyond the short period of a single day.

Copper Vessels have been attended with so many fatal consequences in the preparation of food, that they were prohibited by the *Senate of Sweden* about the year 1752, which directed that none but those made of *Iron* should be used in their fleets and armies.

COPPER is easily dissolved by acids, and, from its solution, that poisonous substance called *Verdegris* is produced. *Vinegar and salt*, things in common use with our food, also strongly corrode it; and as all metals acted upon

upon by fire, largely throw off their *effluvia*; from both these causes a considerable quantity of *cupreous poison*, of the most dangerous and subtle kind, may thus impregnate the aliment during its preparation, which being taken into the body, and as it were transfused through the blood, will pervade the vascular system, and have the same slow and baneful effect as that said to be produced by *Indian poison*, viz. the patient will gradually waste and decline; and there is reason to believe, that the frequency of *Palsies*, *nervous Disorders*, and *complaints of the Stomach*, are, in part, owing to this and such like causes.

FIVE *Monastics* out of thirteen, upon the continent, who eat soup prepared in an unclean *Copper Vessel*, several years ago, after suffering the most excruciating pain in the stomach and bowels, died by the effect of the *cupreous Poison*. The melancholy accident which happened to several gentlemen who dined at the Inn at Salt-Hill, though supposed to arise from adulteration of their Wine, was probably owing to the same cause. Some of them were suddenly taken ill and died soon after; others,

others, who ſurvived for a time, were affected with pain in the bowels, and at laſt carried off by lingering illneſs.

BELL-METAL being a compoſition of Copper and Tin; metal ſpoons, and all other kitchen utenſils of the ſame nature uſed in preparing food, ſhould be laid aſide for the ſame reaſon.

THE common *earthen-ware* in conſtant uſe, and not ſuſpected of any bad conſequence, alſo becomes *pernicious*, when it contains *Acids*, which is frequently the caſe in pickling, &c. being *glaſed* with *Lead*, *another mortal poiſon*; for, though it appears to have a fine glaſſy ſurface, this thin covering may eaſily be *diſſolved by hot, acid liquors*, ſuch as vinegar or lemon-juice. From theſe, the ſalt or *ſugar of Lead* may afterwards be obtained, which, taken inwardly in any conſiderable quantity, has been found to produce ſpaſms, and excruciating pains of the Stomach, with Coſtiveneſs and contraction of the Bowels.

IF

If the poisonous substances, proceeding from Copper or Lead, have been recently taken; vomits are recommended to evacuate them speedily; but, where they have brought on great inflammation of the stomach, their violence might increase it, and produce *mortification*. Two parts of fresh *castor oil* agitated with a third part of the mucilage of *Gum Arabic*, and given by short intervals, in the quantity of two or three spoonful till it produces a thorough passage of the body, will act more gently in carrying off the offending matter. The *common emulsion* with almonds and *magnesia*, may then be administered, and clysters injected with the mucilage of starch, the yolks of fresh eggs, and sweet oil, in tripe-water; which, being soft and balmy to the excoriated bowels, will afford them artificial mucus. Should these Poisons have entered the blood; a solution of Gum Arabic with Manna will not only keep the bowels *soluble*, but blunt their acrimony, in the same manner as when taken to abate *strangury* from the application of blisters.

CHINA,

CHINA, or Staffordſhire Ware, are moſt proper for all thoſe pickles and preſerves, in which vinegar or other acids are principal ingredients.

TIN itſelf, though the moſt elegant and unexceptionable of all other metals for culinary uſe, except Iron, is not perfectly innocent; for, it has been experimentally found to contain a ſmall portion of *Arſenic*, with which it has the greateſt affinity, and ſo ſtrongly combines, that the force of fire is ſcarcely able to diſunite them. This perhaps may fortunately be the reaſon why food, prepared in tin veſſels, has ſcarcely ever been known to produce bad effects.

MOST of the tin ores contain *Arſenic* which is not entirely ſeparated by the common proceſs of fuſion: *Margraff* aſſerts, that from Tin, eſtimated pure, he obtained one-eighth part of the cryſtals of Arſenic; from which, Tin, adminiſtered to the human body, probably becomes deſtructive to the tape-worm.

MUSHROOMS,

MUSHROOMS, and the *lauro-cerafus or common Laurel*, with berries like a black cherry, have been deemed noxious, though often ufed in food; the firft in ketchups and ragouts, and the leaves, or diftilled water of the laft, to give a high flavour to cuftards, creams, &c. Taken in moderation, *Mufhrooms* will feldom prove injurious; but *Laurel-water*, according to feveral late experiments, is perhaps the moft fubtile and *infidious Poifon* in nature, for it feems immediately to extinguifh the vital principle, and fuddenly deftroys without pain, or other previous figns of its mortal effects.

THE *bitter Almond* contains both a *Poifon* and its *Antidote*; for, in its natural ftate, it may be taken as nourifhment, with the greateft fafety; but feparate from it the two forts of *oil* of which it is poffeffed, the one from its hufk or exterior membrane, by diftillation; the other from its *farina* or mealy part, by preffure; and we fhall find, that *ten drops* of the firft, in an ounce of water, will kill a dog in half an hour. Hence it appears, that many things

prepared by the hand of nature, are ſalutary; but, if we torture and disjoin their parts; *whole-ſome, natural ſubſtances may then be converted into dangerous, artifitial poiſons.*

CONTRARY to the quality of other oils, which ſwim in water; that red oil, thus obtained from the brown membrane of the bitter Almond, is ponderous and ſinks to the bottom.

THE cordial dram, called *Ratafia*, much uſed in France, receives its fine flavour from the kernels of peach, black cherry ſtones, &c. and is therefore a *ſlow Poiſon*; ſeveral inſtances having been lately produced of its proving mortal, when taken in a large quantity.

LAUREL-WATER has frequently been mixed with brandy, to give it the flavour of Ratafia, particularly in *Ireland*, where its dangerous effects were firſt diſcovered; two women having been ſuddenly killed by drinking it.

THE

THE spirit of *Lauro-cerasus* has been found even more deadly in its effects than its oil; insomuch that no degree of strength was sufficient to resist its power; and, from its singular quality of suddenly destroying every species of animal, it may be considered as the most dreadful of all known poisons, not even excepting those of the Indians, called *Lama* and *Ticunas* brought from the banks of the river *Amazons*; or that called *Woorara* mentioned by Dr. *Bancroft* in his Natural History of *Guiana*.

WHEN we consider the active powers of this fatal Poison, which, by its sensible qualities to the smell or taste, manifests no signs of its destructive nature, it will be difficult to point out its proper antidote. An *emetic* should immediately be given; and, from the good effects of diluted *volatile spirits* forced into the stomach of quadrupedes and applied to their nostrils, when in a state of *convulsion*, *paralysis*, or *stupefaction*, from having swallowed this poison; there is reason to conclude, that the same remedies,

aſſiſted by gentle ſtrokes of *Electricity*, *bliſters*, *pungent injections*, and *concentrated vinegar* taken by the mouth, might produce happy conſequences in the human ſpecies.

THE adulteration of *Bread*, *Beer*, and *Wine*, a grievance long and juſtly complained of, is another ſource of morbid affection in the human body, which has been fatal to ſome, and prejudicial to thouſands; yet the abuſe ſtill continues, to the diſgrace of Legiſlature which ought to be the watchful guardian of public good. In *Turkey*, ſuch frauds meet with exemplary puniſhment; and in this as well as many other things, Chriſtians might imitate Mahometans, without degrading their judgement or diminiſhing their humanity.

MEAL-MEN and Bakers adulterate the fine wheaten flour with others of an inferior kind, and to reſtore the whiteneſs which it loſes by ſuch mixture, chalk and other ingredients are put in, as well as to give it additional weight, by which they become gainers. *Alum*, a violent aſtringent, is alſo frequently added; and to counteract its quality, I am informed,

informed, that *Jalap* often makes a part of the composition. These are not mere conjectures, but facts which have been repeatedly and incontestably proved.

In Brewing malt liquors, the like frauds prevail. Gentian root, worm-wood, and green broom-tops, (happily not noxious) are substituted for *Hops*; and to supply the deficiency of *Malt*; *Cocculus Indicus a poisonous berry* used for intoxicating fish, and *Nux vomica* the poison of kites and carrion-crows, are frequently added, to give strength to Porter and Ale; particularly, the *first of these ingredients.*

Some, who drank largely of such liquors, were seized with *head-ache, and stupefaction* succeeded by palsy, nervous complaints and *diseases of the Stomach and Bowels. Spanish liquorice, salt of steel* or *green copperas*, by brewers termed C. G. are frequently added to *Porter*; the first to give it colour and mellowness, the last to bring it forward, or in other words, to make new

 beer

beer drink like old. Happily, ſuch things are not hurtful. I have frequently obſerved the good effect of Porter in thoſe of weak digeſtion who had *hectic heats* after eating, and ſome years ago ſenſibly experienced it myſelf; which probably was owing to the ſalt of Steel acting on the habit as a powerful *Tonic*.

SUGAR *of Lead*, the poiſonous quality of which has already been conſidered, is frequently added to ſmall, weak Wines, to prevent them from turning ſour, or to recover ſuch as have become ſo; huſks of bitter almonds (a poiſon) have been infuſed in white Port, to communicate to a madeira flavour. Much of what is called red Port wine is not the juice of grape, but a mere compoſition of cider and ſpirits, with the addition of *Alum* to make it rough, and *Cochineal* to give it colour; and, by the ſame dexterous art and myſtery of compoſition, *Moſel-wine*, with a ſmall portion of mineral acid, is converted into old Hock.

ALL

ALL white wines affect the brain and nerves more than thoſe which are red, (Rheniſh and Old Hock excepted,) their ſedative power being probably counteracted by aſtringency; and if Rheniſh wine does not equally affect the head, it is becauſe it abounds with *acid* which corrects its inebriating power; for *acids* previouſly taken into the ſtomach, have been experimentally found, in a conſiderable degree, not only to abate the narcotic effects of wine, but even of *Opium* itſelf.

I AM far from ſuppoſing thoſe iniquitous practices are carried on by all Bakers, Brewers, or Vintners; but that they have long prevailed with many and are ſtill too frequent, needs no farther confirmation, than an appeal to thoſe, who by certain Experiments, have been able to detect ſuch frauds, and to diſtinguiſh the difference of the articles under conſideration, in a pure or adulterated ſtate.

As the rational practice of Physic redounds to the public good, so nothing can be more dangerous or destructive to health, and even life itself, than the *abuse of Medicines*, especially those of the powerful kind. This observation is every day verified by the injudicious use of *Mercury*, in particular, from which many constitutions have suffered more than by the very disease it was intended to cure.

THE preposterous use of strong *Emetics* and *Cathartics*; the long continued exhibition of *Opiates*, and of warm *stimulating Bitters*; the unseasonable use of the cold Bath, and profuse *loss of blood* by the Lancet, have all had their share in aggravating some diseases and producing others, especially those of the *Stomach and Bowels*.

MERCURY or Quicksilver is a ponderous mineral fluid, consisting of minute globular parts, and the heaviest of all bodies, excepting Gold.

IN its purest state it seems void of acrimony, except when divested of its natural form by *chymical process*; and such is the peculiar property of

of this fluid, that its ultimate particles ſtill retain their ſpherical figure, though ever ſo minutely divided, or reſolved by heat into the moſt ſubtile vapor; and as it is ſuppoſed to act upon the human body by its *gravity, diviſibility, and figure; it is probable that all elaborate chymical Proceſſes, by changing its figure, leſſening its gravity, and fixing its motion, rather tend to deſtroy than exalt its medicinal Virtues.*

MERCURY may injure the Conſtitution either by its *Quantity* or *Quality*. By its quantity it will preternaturally increaſe the blood's motion, and by overloading the veſſels of the *Lungs* or ſofter *Viſcera*, has frequently occaſioned *ſpitting of Blood*, hectic Fever, and other conſumptive ſymptoms.

BY ſuch means the *mutual Balance between the Solids and Fluids being deſtroyed*, the vital functions become rapid and irregular, and the *body will be worn out before its time*; like a watch or machine whoſe *main-ſpring* is made to act with too much violence upon its ſubordinate movements.

WITHOUT

Without diſregarding the teſtimony of truth, it cannot be denied, that this remedy is often attended with conſequences not only dangerous, but fatal; where the *Lungs* are tender, or any of the delicate, internal parts in a ſtate of *Decay*.

Salivation, or the immoderate uſe of Mercury, by enlarging the Secretions, and the exceſſive waſte of animal fluids, will diſpoſe the body to univerſal relaxation, and produce many chronic diſeaſes, particularly *ſpitting of Blood*, *Conſumption*, and *Dropſy*.

Loss of *Appetite* and *Indigeſtion*, are likewiſe diſorders more immediately ariſing from *Relaxation* and general weakneſs than any other cauſe; for, whatever braces the fibres and increaſes the powers of the body, ſeldom fails to reſtore the Stomach to its natural ſtate.

Almost every one, from experience, may know the injury of a ſimple *Sprain*, and how long it is before the injured part regains its former Strength. The ſame cauſe will alſo account

account for the exceſſive weakneſs which follows a high-raiſed Salivation, or the immoderate uſe of *Mercury*; for, in both caſes, the nature of the injury is the ſame, *viz.* the application of a *greater force* to the Solids than their natural ſtructure can bear; only, in the firſt, the effect is inſtantaneouſly produced in a particular part, with the ſenſe of pain; but, in the laſt, is univerſal, and brought about by degrees ſo ſlow and inſenſible, as not to give ſuch manifeſt and immediate marks of danger.

THAT the tender blood-veſſels of the finer *Viſcera* may be *over ſtrained*, and even *torn aſunder by Mercury*, is proved to demonſtration by Dr. Moulin, in the Philoſ. Tranſact. No. 192, p. 486. where, by injecting crude Mercury into the jugular vein of a Dog, the mercurial globules had burſt through the ſmall veſſels in the lungs, and forced their way to the ſurface, ſeparating their external covering in form of ſmall bliſters, where *he found globules conſpicuous to the naked Eye*; and as this

this ſeems pertinent to the preſent ſubject, I ſhall tranſcribe his own words, as the reſult of his Experiment.

"FROM hence may appear the danger of uſing "Mercury in human bodies, ſo as to get into "the maſs of blood, eſpecially in the Lungs, "becauſe they are of a lax, ſpungy texture, "and want that briſk, ſtrong motion which "the muſcles have in other parts, whereby "they are enabled to force it along with the "blood in order to the raiſing a Salivation. "That Mercury has this effect on the human "Lungs, is plain from what we daily ſee in "perſons that have been ſalivated, who are "afterwards obſerved to die of *Conſumptions* "*that will yield to no Medicine.*"

THIS Obſervation is farther confirmed by Mercury found in the ſpungy decayed bones, and cellular ſubſtance of the ſcull, in thoſe who died after a high-raiſed *Salivation.*

IN a word, the *immoderate uſe of Mercury* has been obſerved, from repeated experience,

greatly

greatly to injure the Brain and Nerves, as well as the *Stomach* and *Bowels* depending upon their influence; and thus, by weakening the animal ſyſtem, ſubjects the Patient to *Gout, Debility, nervous Diſorders, loſs of Memory, confuſion of Ideas, low Spirits, and premature old age.*

THE quality of Mercury is not leſs pernicious to the conſtitution, than its immoderate *quantity* eſpecially when *adulterated.* I knew a young gentleman not nineteen years of age, *attacked with a violent fit of Gout,* ſoon after a ſalivation, of which it was evidently the exciting if not the proximate cauſe; as he had not before been ſubject to the leaſt ſymptom of any ſuch malady.

THE pernicious quality of Mercury, in the form of *Corroſive Sublimate,* is too manifeſt to need illuſtration. A Gentleman from Norfolk, ſome years before he was under my care, was rendered incapable of walking with his body *upright,* from *Inflammation* and *Contraction* of

of his *Bowels, brought on by taking the Solution of Sublimate,* and died by the consequence of its use.

I HAVE seen two instances of a Salivation brought on by the external use of *Sublimate* applied as a Lotion; and one, where the same accident happened, by the application of *red precipitate of Mercury* to an ulcerous sore.

Corrosive Sublimate consists of Mercury combined with the acid of sea salt; so that each mercurial particle may be considered as armed with saline *Spiculæ* or sharp needles, which admitted into the stomach will wound its tender nervous lining and occasion the most excruciating torture. When this poison is taken into the stomach, either by accident or design, the most speedy and effectual method to destroy its power and prevent its mortal effects, especially when it cannot be rejected by vomiting, will be to *decompose it*; that is, to detach the mercury from its union with the *marine Acid.* This may be done by giving lixivium of tartar, salt of wormwood, or any of the alkaline salts mixed with a sufficient quantity of water. An

emulsion

emulſion with *Caſtor-Oil* diſſolved in the yolk of an egg or united with a ſufficient quantity of the mucilage of gum arabic may then be adminiſtered to heal the excoriated bowels, and carry off the remainds of the poiſon.—The ſame method of treatment may be purſued with thoſe who have ſwallowed *Arſenic.*

A SOLUTION of *Corroſive Sublimate of Mercury* was frequently adminiſtered ſeveral years ago; but having, in ſome, occaſioned violent ſickneſs at ſtomach, and in others excruciating pain in the bowels, with *bloody Stools*; its uſe is now diſcontinued by all who value their patients ſafety, or their own reputation; eſpecially ſince it has been ſuppoſed, that *Arſenic* has ſometimes been mixed with *Sublimate* to give it a whiter colour; but this opinion does not ſeem well founded.

WHERE Mercury is intended to be adminiſtered, the ſafeſt way of introducing it into the body is by unction applied to the ſkin; but even this method is not void of danger; for *Lead is often mixed with Mercury,* from which it cannot be ſeparated by ſtraining or other

mechanical

mechanical operation; and to the *ſlow Poiſon of Lead,* thus admitted into the blood, may be imputed ſome of the bad effects of Mercury, which ought therefore always to be purified by diſtillation.

OPIUM, the inſpiſſated juice of the *Theban Poppy,* in its medicinal effects on the animal ſyſtem, is the moſt extraordinary ſubſtance in nature.

IT touches the Nerves as it were by magic and irreſiſtible power, "*and ſteeps the Senſes in for-*" *getfulneſs,*" even in oppoſition to the determined will of the Philoſopher or Phyſiologiſt, appriſed of its *narcotic Effect.*

THE modification of matter is infinite; and who ſhall truly ſay, by what peculiar, or ſpecific configuration of its parts, *Opium,* even in the quantity of a ſingle grain, adminiſtered to the human body, ſhall *aſſwage the moſt raging Pain, and procure profound Sleep?*

THE

THE action of matter upon matter, thus exemplified in the effect of *Opium* on the animal ſyſtem, is not leſs aſtoniſhing and incomprehenſible, than that of *Spirit upon Matter*, or the agency of Mind on the motive powers of the Body.

THE firſt effects of *Opium* are like thoſe of a ſtrong, ſtimulating cordial, but are ſoon ſucceeded by univerſal languor, or irreſiſtable propenſity to Sleep, attended with *Dreams* of the moſt rapturous and enthuſiaſtic kind: After thoſe *contrary effects* are over, which are generally terminated by a *profuſe Sweat*; the body becomes cold and torpid, the mind penſive and deſponding; the head is affected with ſtupor, and the ſtomach with ſickneſs and nauſea.

IT is not my buſineſs, neither is it in my power, to reconcile that diverſity of opinion which has lately prevailed concerning the manner in which *Opium* produces its effects; or to determine whether it acts

H ſimply

ſimply on the Brain and Nerves, or, according to the experiments of *Fontana*, on the maſs of blood only.

OPIUM is the moſt ſovereign Remedy in the *Materia Medica*, for eaſing pain and procuring ſleep, and alſo the moſt certain *entiſpaſmodic* yet known; but, like other powerful medicines, becomes highly noxious to the human conſtitution, and even *mortal* when improperly adminiſtered. Its liberal and long continued uſe has been obſerved greatly to injure the brain and nerves, and to diminiſh their influence on the vital organs of the body. By its firſt effects, which are *exhilarating*, it excites a kind of temporary delirium, which diſſipates and exhauſts the ſpirits; and, by its ſubſequent *narcotic power* occaſions confuſion of ideas and loſs of memory, attended with nauſea, giddineſs, head-ache, and conſtipation of the bowels; in a word, it ſeems to ſuſpend or diminiſh all the natural *Secretions* and *Excretions* of the body, that of perſpiration only excepted.

THOSE

THOSE who take *Opium* to exceſs become enervated and ſoon look old; when deprived of it, they are faint, and experience the languor and dejection of ſpirits common to ſuch as drink ſpirituous liquors in exceſs; to the bad effects of which it is ſimilar, ſince, like thoſe, they are not eaſily removed, without a repetition of the doſe.

BY the indiſcriminate uſe of that preparation of *Opium* called *Godfrey's Cordial*, many children, in this great Metropolis, are yearly cut off; for it is frequently given doſe after doſe, without moderation, by ignorant women and mercenary nurſes, to ſilence the cries of Infants and lull them to ſleep, by which they are at laſt rendered *ſtupid*, *inactive*, and *rickety*.

OPIUM contains Gum, Reſin, eſſential Oil, Salt, and earthy matter; but its *narcotic* or ſomniferous power has been experimentally found to reſide in its *eſſential Oil*.

THE better to ascertain the dose of *Opium*, as well as its effects, it should be considered as a thing of real moment to have its *extract pure*; this may be obtained by adding equal quantities of distilled water and pure spirit of wine, viz. twelve ounces in the whole, to one ounce of crude *Opium*; these being frequently agitated and digested in the sun, for six or seven days, will make a *strong Tincture* which may be filtered through paper and kept for use; or being placed in a broad flat vessel, by a very gentle heat, may be reduced to a *soft pure extract*. Of the above tincture, from twenty to sixty drops may be used occasionally; and of the Extract, from half a grain to one grain and a half, or more.

IT is here proper to remark, that, in plethoric habits of body, where the pulse is hard, full and frequent, the skin dry, the body costive, and the vessels of the head overcharged with blood, which may best be known by the inflammatory appearance of the Eyes; OPIATES ought not to be directed, *till Bleeding and Laxatives* have preceded. On the contrary, in those

thoſe of great ſenſibility who are ſubject to nervous diſorders, or to painful and ſpaſmodic affections; where the pulſe is languid, unequal and loſes its firmneſs; the power of OPIUM is almoſt divine: It will ſoothe the Nerves into a ſtate of tranquillity, ſuſpend the force of mental anguiſh, and bodily pain, and at laſt procure Sleep.

SPIRITUOUS cordials, with ſyrup of white Poppy, will be found the beſt ſubſtitutes for *Opium*, with thoſe who have been accuſtomed to it; but, it will be neceſſary to diminiſh their quantity by degrees, and then wholly to omit them; inſtead of which five grains of *G. Aſſa fœtida* may be given occaſionally in a pill, with the camphorated mixture. In this manner, I have prevailed on ſeveral totally to deſiſt from *Opium*, who, I apprehended were much injured by its long and liberal uſe.

IT may perhaps be ſaid, that the moſt powerful medicines are obtained from the ſtrong-

 eſt

eſt Poiſons. In ſome degree this may be true; but it ought to be remembered, it is their proper or improper uſe that conſtitutes the remedy or the poiſon; and conſequently ſuch dangerous ſubſtances ſhould never be directed without judgement and prudent caution.

OF ſtrong *Emetics*, and harſh, draſtic *Purgatives*, it is ſufficient to ſay, that their frequent uſe has been obſerved greatly to injure the *Stomach and Bowels*, to impair Digeſtion, and to render the body coſtive.

THOSE of tender bowels, or *weak Nerves*, ſuffer much from the violent agitation of *Emetics*, which invert the natural, expulſive motion of the inteſtinal canal, and occaſion regurgitation of bile into the Stomach, contrary to its natural courſe downwards, attended with nauſea and intolerable ſickneſs. To ſuch alſo as are of full habits of body, or who have *unſound Viſcera* tending to inflammation; Emetics are dangerous, and have ſometimes proved fatal,

fatal, by increaſing inflammation, or burſting a blood-veſſel.

In general, it may be right to encourage thoſe diſcharges which nature ſeems to have ſet on-foot; but this rule is not without exception; for, every diſcharge is not *critical* or ſalutary, but on the contrary often *morbid* and ſpaſmodic. It is too much the common practice to give an *Emetic*, wherever ſymptoms of *bile* appear at the ſtomach, without duly regarding the cauſe of its redundance; which, for the moſt part, is a *ſymptomatic* and not a *primary affection*; for, where bilious vomiting is preſent in caſes of *nephritic Colic*, inflammation of the Stomach, plethoric diſorders of the head, or a diſpoſition to *Apoplexy*, which not unfrequently happen; *Emetics* will aggravate the diſeaſe, and render it more dangerous, or even *mortal*. Bleeding, plentiful dilution, and the warm bath, will be proper, and gentle Laxatives to carry off the offending bile by the inteſtines.

To ſuppoſe a diſeaſe *bilious*, becauſe there is a diſcharge of *Bile*, is an exceptionable opinion which frequently leads to errors in practice; for daily experience informs us, that the ſimple efforts of the Stomach from *ſea ſickneſs*, injuries of the brain, and other cauſes, may produce *bilious* vomiting, without redundance of bile, or any depravity of that fluid indicating ſuch ſtate of the conſtitution as may properly be called *bilious*.

BY *ſtrong Purgatives* often repeated, the Inteſtines are robbed of their mucus and rendered tender, irritable, and ſubject to diarrhœa, and colic pains; eſpecially after taking cold, errors in diet, or other accidental cauſes, which, in their natural, ſound ſtate, would have produced no ſuch effects. Beſides, by their long continued uſe, the body is deprived of nouriſhment, and the blood ſo much impoveriſhed, that many inſtances might be brought to prove a *Dropſy*, *Conſumption*, or other chronic diſeaſes were the conſequence.

FROM

FROM the habitual uſe of *Purgatives*, as well as ſpirituous liquors, the bowels, will loſe their villous coat or fine nervous lining, ſo as to become half *callous*, and at laſt inſenſible to the gentle ſtimulus of *bile* the purgative appointed by nature to quicken their motion; therefore, *coſtiveneſs* will be another bad conſequence of their frequent uſe, which, like the abuſe of *Opium* or ſpirituous liquors, oftener become neceſſary from bad *habit*, than any natural defect in the expulſive force of the alimentary tube.

STIMULATING Medicines, *in their firſt* effect, have been obſerved to relieve complaints of the Stomach, where the fibres are lax, and the circulation languid; and, in this manner, plaſters with Myrrh, Camphor, and the warm ſpices, even when externally applied to the gaſtric region, have removed agues, and ſome nervous and hypochondriacal diſorders; but ſuch maladies have been relieved or perfectly cured by the Peruvian Bark, exerciſe, and freſh air, after ſtomachic bitters, and heating aromatics had been given in vain, or with aggravation of the ſymptoms. The reaſon

reaſon is obvious; the firſt only act locally on the Stomach for a ſhort time, like a cordial dram; the other operate permanently, on the general habit, eſpecially when aſſiſted by mild *alterative Medicines*; and by promoting a free, and equal diſtribution of blood through its veſſels, ſupport the natural ſecretions, and increaſe the vital powers of the Stomach, in common with other parts of the body.

SPICY *bitter Medicines* invigorate the nerves of the ſtomach and expel wind; ſo far they are productive of preſent relief in relaxed habits, or cold phlegmatic conſtitutions; but the debility and languor that ſucceed their frequent uſe, the feveriſh heat they occaſion, with thirſt, coſtiveneſs, and ſometimes a fit of the piles, ſoon convince the patient, that, for momentary good, he muſt experience a laſting injury.

THUS to ſolicit a weak, enervated Stomach to the exertion of powers which it does not poſſeſs,

poſſeſs, are means not leſs rational than that of ſpurring a horſe when his ſtrength is exhauſted. Such medicines by their local ſtimulus may excite an inordinate craving for food, but cannot properly be ſaid to create a natural appetite. That can only be permanently reſtored by repairing the conſtitution, and increaſing bodily ſtrength, with which the powers of the Stomach correſpond, and are intimately connected.

MODERATE Exerciſe in an open carriage, or on horſeback, in *cool*, *dry*, *pure Air*, which, of all others, is moſt bracing, aſſiſted by a ſtrong infuſion of *Peruvian Bark*, with *mineral Acids* and Steel, and afterwards the chalybeate waters of Iſlington, Tunbridge or Spa, with the uſe of a fleſh-bruſh, and *cold Bath*, where the *Viſcera are ſound*, are the principal remedies to be depended upon for laſting relief, in *primary atonic weakneſs of the Stomach*.

ALL ſtimulating Medicines act as *ſedatives*, that is, they diminiſh the vital power of the body, when their firſt effect is over; as appears evident

dent in *Opium*, *ſpirituous Liquors*, &c. and ſtimulants even when externally applied, as in bliſters with *Cantharides*, produce a ſimilar change, and have been obſerved to occaſion ſleep, when other means failed.

BITTERS, aſtringents, and aromatics are all of the *Tonic kind*; but practical experience clearly proves, that their liberal and long continued uſe is highly *pernicious*, and that thus adminiſtered they defeat the very purpoſe intended; for, after a certain time, they diminiſh the energy of the Stomach, and at laſt deſtroy the vital powers of the whole animal ſyſtem.

THE truth of this obſervation has been fatally exemplified in the exhibition of the *Portland Powder*, ſo long and unjuſtly celebrated in curing the *Gout*; for, authors of the firſt eminence, whoſe authority is unqueſtionable, have remarked, that although ſeveral who took it were almoſt free from regular fits, they were nevertheleſs afterwards ſubject to the

moſt

moſt dangerous ſpecies of it, viz. *irregular, atonic Gout* which often proves fatal, by falling upon the *ſtomach and bowels* or other vital parts; and *Dr. Cullen* in his Lectures, has obſerved, that moſt of thoſe who unfortunately perſevered in its uſe, for the long ſpace of time it was uſually directed, were ſuddenly cut off by *Apoplexy*, or died of an *Aſthma, Dropſy*, or *Palſy* from the weakneſs and diminiſhed tone of the ſolids, brought on by that medicine, the ingredients of which are all of the *aromatic, and aſtringent, bitter kind.*

I ſhall here quote his own words, as his obſervation is applicable to the preſent occaſion.

" Not long ago, in England, the *Duke*
" *of Portland's Powder* came into great repu-
" tation. This powder, in the Duke of
" Portland himſelf, and in many others who
" uſed it, prevented the painful return of the
" Gout, and inflammation of the extremities,
" and thus ſeemed to cure the diſeaſe; but
" almoſt

"almoſt always with a conſiderable change "in the ſyſtem and pernicious conſequences. "I may venture to ſay, that ninety out of "an hundred, who have taken this Remedy, "in a year or two after, have been carried "off by *Apoplexy*, or ſome other mortal *Diſ-* "*eaſe*. In Scotland, only twelve or thirteen "perſons have taken this powder, and all "have done it with the above conſequen- "ces. All this I mention from my own "knowledge. The Courſe of this Medicine "muſt be continued for *two years*, to pro- "duce the deſired effect."

"Upon the reputation of this powder in "England, trial was alſo made of it in Hol- "land, and *Profeſſor Gaubius gives* teſtimony, "*of its having had the ſame bad effects*. Such "is the ſtate of facts, with regard to the "uſe of *Bitters*; from whence we ſee how "ſparing ought to be their uſe in Stomach "Complaints."

I have elſewhere obſerved that the human body is ſuſtained and kept alive by three principal

principal powers, which, like the movements of a fine machine, co-operate and aſſiſt each other; namely, the Brain and Nerves, the Heart and Arteries, and the Stomach and Bowels. Thoſe, with the action of the Lungs, conſtitute the very principles of life, and are the inſtruments of all ſenſation, circulation, and vital motion, and the very agents which govern and direct the whole animal machine; conſequently, when any of them are diſconcerted or put out of order, the functions of the body muſt be unduly performed, and ill health will enſue.

BUT, beſides theſe powers, there is a more latent principle of life, called *Irritability*, which does not depend upon any of the former, but continues to exiſt in the body, after all ſenſation and circulation are loſt, and every vital principle but itſelf extinguiſhed and deſtroyed.—*Irritability* may therefore be defined, a property reſiding in the animal fibre, from the nature and peculiar ſtructure of its parts, which upon being pinched or ſtimulated, is endowed with the faculty

faculty to contract and ſhorten, although the animal be dead; for the Heart which is the moſt irritable part may be excited to motion, after the head is ſeparated from the body; hence this deduction may be made; that *Irritability* is *independant of both Senſibility* and *Circulation*; and as it is manifeſtly the firſt principle which gives commencement to animal life, ſo it ſeems the lateſt in taking leave of the body.

OBSERVATIONS made by the Microſcope, and alſo anatomical Injections demonſtrate, that all parts of the body are moſt vaſcular and elaſtic, in *Infancy*; and that from the ſimple effect of age, which hardens the animal fibre, and renders it more rigid and leſs elaſtic, as well as the effect of the blood's impulſe upon the yeilding ſolids; many veſſels, which at firſt, freely tranſmitted blood, are from thence condenſed into ſolid fibres; this mechanical change in the conſtitution is gradual and progreſſive from infancy to old age; for when the *Mucus* or glue of which the ſolids are made up, becomes ſo firm as to loſe

its

their ſenſibility and irritability; and that elaſticity or re-action of the vaſcular ſyſtem oppoſed to the Heart's motion, being leſs; the circulation will become languid, and a paralytic numbneſs, or apoplectic ſtagnation ſucceeding; the animal muſt neceſſarily die.

THIS apoplectic diſpoſition prevails moſt in advanced age, when a *venous plethora prevails*, or to ſpeak more intelligibly, when the blood impelled by the Heart through its arteries, is returned by the veins with greateſt difficulty.

THAT natural proceſs inherent in the human conſtitution, of increaſing the coheſion of the ſolids, from the effect of age, is greatly augmented by various cauſes, of which the moſt powerful are intenſe Cold, Acids, ardent Spirits, and aromatic aſtringent *Bitters*; eſpecially in advanced age, about that period of time when the conſtitution may be ſuppoſed moſt ſubject to *Gout*, and when the *Portland Powder* was uſually adminiſtered; the pernicious effect of which concurring with the natural

tendency of the habit in hardening the ſolids, contracting the veſſels and rendering them impervious to the circulating blood, may with reaſon, be ſuppoſed ſo much to diminiſh the ſenſibility, and irritability of the corporeal ſyſtem, and ſo greatly to impair its vital energy, as to haſten old Age, and put a premature period to human life.

In proof of this natural tendency of the ſolids to rigidity, from the effect of Age, may be mentioned the *Oſſification of Arteries*, or converſion of flexible blood-veſſels into rigid bony canals which having no elaſticity or reaction againſt the Heart's impulſe; the circulation, in ſuch parts, will conſequently ceaſe, and they muſt neceſſarily periſh and die.

By having thus enquired into the ſtate and condition of the body at different periods of its exiſtence; and in what degree the vital power is moſt vigorouſly exerted from *Infancy to old Age*; we ſhall be better able to account for that *mechanical, morbid change* produced in the ſolids, by particular ſubſtances of the *ſtimulating, aſtringent,*

tringent, bitter kind, like thoſe of the *Portland Powder*; and how, they may occaſion *Apoplexy* and *ſudden Death*, or become mortal by ſtealing ſlowly upon the conſtitution in form of *Dropſy, Palſy*, or other chronic diſeaſes.

FROM the preceding reaſoning it is evident, that although *Tonics* may ſtrengthen the body when judiciouſly directed, yet when given in exceſs, or too long continued, they counteract their own purpoſe, by diminiſhing its *irritability*, and *ſenſibility*, and conſequently impair the vital power of the whole corporeal Syſtem; for, *the oppoſite extremes of tenſion and relaxation of the Solids*, are equally detrimental to a vigorous and healthy ſtate of the human conſtitution.

I HAVE been more circumſtantial on this ſubject, as the reaſoning here adduced will not only apply to the deſtructive effects of *Portland Powder*, and ſuch like ſtimulating compounds; but alſo to the *abuſe of ardent Spirits*, and the *pernicious uſe of Opium* already mentioned, which I think have not hitherto been ſufficiently pointed out or attended to.

No Remedy has been more abuſed than that of *Bleeding* by the lancet, the prepoſterous uſe of which, therefore deſerves conſideration; for, blood being the fountain of life, the profuſe or unſeaſonable diſcharge of it, will endanger the conſtitution by deſtroying that due balance which ought to ſubſiſt between the ſolids and fluids.

IN *acute Diſeaſes*, where blood is redundant, bleeding is a ſpeedy and efficacious remedy; but in *chronic* as well as acute *Maladies* of the putrid kind, when it rather offends in quality than quantity, the loſs of blood is productive of great injury; particularly in thoſe of lax ſolids, weak nerves, and bad *Digeſtion*. But ſhould it, for particular reaſons, be ſometimes thought neceſſary in ſuch caſes; the advantages propoſed by it, may be more ſafely obtained by ſpare diet, moderate exerciſe, and gentle laxatives, which will gradually empty the veſſels, with much leſs diminution of ſtrength.

THE

THE frequent and unſeaſonable loſs of blood, in thoſe of a ſpungy habit and pale aſpect, weakens the circulating power, and diminiſhes the natural ſecretions and excretions; it impairs digeſtion, diſpoſes the body to corpulency, dropſy, and nervous diſorders, and even convulſions, where blood is diſcharged ſuddenly and in great profuſion.

IF the patient, after bleeding, is affected with languor, flying pains, oppreſſion, or ſleepineſs, he has then been greatly injured by it; for, in ſuch, the circulation languiſhes, perſpiration is leſſened, and the *blood is not carried far enough through its veſſels, to invigorate the ſyſtem and ſupport the natural ſecretions*; hence a load of groſs humours will be accumulated, and a bloated habit of body will enſue; eſpecially in thoſe who indulge in eating, and uſe not ſufficient exerciſe to carry off the redundant fluids.

ON the contrary, thoſe of ſtrong ſolids, a coſtive habit, and hard, full pulſe, attended with giddineſs and head-ache, or other ſymp-

toms of plenitude, may lose blood, use low diet, and keep the body laxative with great relief to the constitution; particularly, at new and full moon, *about the Vernal or Autumnal Equinox*; for at that period, *Apoplexies*, *Palsies*, and other fatal diseases most frequently happen. But, the indiscriminate loss of blood in *spring* and *autumn*, in such as are healthy, is a *vulgar error*, which has been injurious to many; since no alteration, for the better, can add to perfect health.

IN short, such as live temperately, use sufficient exercise, and perspire freely, will seldom have occasion to lose blood by the lancet, except in acute diseases where the circulating power is preternaturally increased by pain, fever, or other violent causes.

SECT. V.

Of ſymptomatic or ſecondary Diſeaſes of the VISCERA, *proceeding from* SCROPHULOUS, VENEREAL *or* SCORBUTIC ACRIMONY; *from* IRREGULAR GOUT, REDUNDANT BILE, *or violent paſſions of the mind; alſo, from coſtiveneſs, external violence, worms, or other acceſſary cauſes.*

IF the diſtinction between primary and ſecondary Diſeaſes of the Stomach, in this and the preceding Section, be not critically juſt, it will at leaſt afford the Reader ſuch a competent idea of their difference, as may be uſeful; and indeed, ſo great is the difficulty of tracing effects to their ſource, that what is ſuppoſed the original, or proximate cauſe of certain Diſeaſes, is often *ſecondary* or the effect of ſome other cauſe too remote for human diſcovery. In this Eſſay having nothing ſo much in view as utility, I have been leſs attentive to nice diſtinctions or ſyſtematic arrangement.

SCROPHULOUS, *venereal*, or *ſcorbutic matter*, by falling on the Viſcera, will interrupt, or deſtroy their natural functions and produce ſymptoms of great violence, which, by long continuance always injure health, and endanger the patient's life. To ſuch affections, may be added others of the like ſymptomatic kind proceeding from *irregular gout*, *redundant bile*, or *violent paſſions of the mind*; all which diminiſh the energy of the viſceral Organs, which cannot be reſtored until thoſe morbid cauſes are removed, which thus *contaminate the blood*.

WE have remarked, that *ſtomachic Bitters*, and ſpirituous, cordial Medicines to which the patient has generally recourſe, are ſo far from being ſerviceable in ſuch caſes, that their frequent uſe has been found injurious in a high degree; for all *ſtimulants* by long continuance counteract their own purpoſe, and produce *attonic effects*. By vellicating the coats of the Stomach, they excite a canine, or preternatural appetite which craves a greater quantity of food

food than the Stomach can digeſt or diſpenſe with; ſo that, inſtead of being nouriſhed, the patient will be oppreſſed with flatulence, palpitation of the heart, hectic heats, and ſuch *chronic Diſeaſes* as are conſequent of ill-prepared crude Chyle, viz. *Gout*, *Dropſy*, or ſcorbutic Cachexy; for, it ſhould ever be remembered that the body is not nouriſhed in proportion to the quantity of food received into the Stomach, but according to the degree of perfection with which it is digeſted.

BESIDES, where the Viſcera are affected from *conſtitutional cauſes* or a bad ſtate of the blood, ſuch medicines having *no alterative quality* or power to change the general habit of body, can produce no laſting, ſalutary effects.

IT is not here neceſſary to enter into a minute diſcuſſion reſpecting the difference of opinion whether the cauſes of *Chronic Diſeaſes* are ſeated in the ſolids, or fluids of the animal body; but it may be proper to remark, that thoſe cauſes when duly examined, are not ſo remote

remote from each other, as they at firſt appear from a ſuperficial view.

IN infancy and youth, during bodily growth, the *fluids are converted into ſolids*; and in more advanced age, there is a conſtant ſupply of juices ſent to the ſolids for their renovation, and repair; conſequently, diſeaſes originally exiſting in the fluids, will at length be tranſmitted to the ſolids, and completely diſſeminated through their ſeveral parts: Therefore whether medicinal ſubſtances act on the one or other, or on both, it does not ſeem neceſſary to determine; ſince, either way, their effect may prove ſalutary.

THE *Scrophula is a Diſeaſe of the lymphatic glands, confeſſedly hæreditary*, as may be proved from innumerable, and inconteſtible inſtances; but it may alſo be acquired, and is moſt frequent in young ſubjects of fair complexions, and lax ſolids.

SOME Authors have ſuppoſed that the proximate cauſe of this diſeaſe ariſes from a vitiated conformation

conformation of the lymphatic ſyſtem; but others with more apparent reaſon, imagine it proceeds from a particular ſpecies of acrimony exiſting in the blood, and diffuſed through the lymphatic ſyſtem.

THIS laſt opinion appears the moſt probable and conſiſtent; becauſe the diſeaſe is found to *prevail moſt in infancy and youth* when the quantity of fluids is largeſt in proportion to the reſt of the body; and abates in more advanced age when thoſe fluids gradually become leſs, and the ſolids more firm, about the age of puberty, in both ſexes; when, in the one, the ſecretion of ſemen commences, and in the other, the periodical diſcharge; by which, ſome portion of the offending acrimony may perhaps be carried off. At leaſt from this extraordinary change, a kind of revolution commences in the human conſtitution which ſeems to give it a temporary aſcendency over the diſeaſe; and therefore, this is the proper ſeaſon to aſſiſt the efforts of nature, by the power of art, or in other words, to adminiſter medicines to the beſt advantage.

BUT

BUT although the *Scrophula* is generally *hæreditary*, it may alſo be adventitious, from all ſuch cauſes as weaken the bodily habit; conſequently, children badly nurſed or improperly fed, or who from preceding illneſs, are unable to uſe ſufficient exerciſe, are of all others, the moſt liable to this chronic weakneſs.

AFTER the *ſmall-pox*, *meaſles*, or *hooping-cough*, eſpecially when thoſe acute diſeaſes have been terminated by an *imperfect criſis*; Children are extremely apt to become rickety, or affected with ſcrophulous ſymptoms, which, then, if duly attended to, would generally admit of cure.

THE ſame ſoft, ſpungy habit of body diſpoſes it to Rickets *and Scrophula.* The laſt is often the effect of the firſt; but, even when the Scrophula is hæreditary, a rickety diſpoſition may prove the exciting cauſe, and anticipate the diſeaſe.

I HAVE

I HAVE indeed obferved that the two maladies are frequently complicated, and their morbid appearances after death, nearly the fame; for, in both, the *mefenteric Glands* have been found inflamed, enlarged, and ulcerated; and the Lungs affected with *inflammation* and *tubercles*; particularly in Scrophula, which, if not removed in the beginning, often unfortunately produce an incurable, *pulmonary Confumption*, or univerfal wafting of the body called *Marafmus*.

A DECOCTION of *Taraxacum*, (dandylion root,) with the addition of Sal polycreft, or *foffil alkali*, may be given two or three times a day; lixiviated whey, with honey; and alfo the whites of frefh eggs may be taken with good effect if continued for a long time; but a more powerful deobftruent may be found in very fmall portions of *crude Mercury* minutely divided with gum arabic, and rendered palatable with fyrup of orange peels. A vegetable Regimen of ripe fruits, and fuch roots as abound with a faponaceous quality will be pro-

per,

per, as thoſe on Endive, Lettuce, Scorzonera, &c. In the concluſion, Peruvian Bark, to an infuſion of which the neutral Salts may be added, will be neceſſary to ſtrengthen the habit.

SEA-WATER, or burnt ſpunge with a ſtrong decoction of Colt's foot, ſometimes afford relief in ſcrophulous diſorders; and *Sea-bathing* where the *Lungs and Viſcera are ſound*, is a remedy of great efficacy; but ſeveral have been much injured who precipitately made uſe of it, without previous evacuation, or other preparation of the body.

RESPECTING *Venereal Complaints*, Dr. SWEDIAUR, in his excellent Obſervations, informs us, that in ſome parts of Italy, there is a *Law prohibiting the uſe of Mercury* in public Hoſpitals there, for curing the *Venereal Diſeaſe*. How then is it cured? by other means moſt aſſuredly; otherwiſe it would be an act of inhumanity as well as bad policy to forbid the uſe of ſo powerful a Remedy, if another more ſafe and efficacious was not to be found.

FROM

FROM this circumſtance, it appears that the Phyſicians who preſide over thoſe Hoſpitals, entertain an opinion very different from many in this Metropolis, who ſuppoſe the venereal diſeaſe is only curable by Mercury. In this aſſertion they either treſpaſs againſt their own judgement, or, in ſpeaking their ſentiments, confeſs themſelves unacquainted with milder Remedies which have repeatedly, and inconteſtibly proved their efficacy in *eradicating the Diſeaſe*; but, I ſhall not trouble the Reader with Opinions which I have advanced elſewhere,* and which, for obvious reaſons, might here appear exceptionable, as foreign to the preſent ſubject.

DR. SWEDIAUR ſpeaking of other remedies, beſides *Mercury*, for curing the *Lues*, expreſſes himſelf, as follows. " Several remedies have " been recommended as ſuccedaneums for " Mercury in the cure of venereal Diſeaſe, " which have been made uſe of for this pur-

" poſe,

* A Diſſertation on the properties and efficacy of the LISBON DIET-DRINK, in the cure of the Venereal Diſeaſe, and Scurvy, &c.

" pofe, we are told, with fuccefs, before, or
" fince Mercury was introduced. Some, we
" are credibly informed, are even at this time
" actually employed with the beft effect, in
" South as well as North America, for *cu-*
" *ring the Venereal Difeafe radically without*
" *Mercury.*

" WITH the Root of *Lobelia Syphilitica,*
" as we are inftructed by *Dr. Kalm,* and af-
" terwards more exactly by *Mr. Bertram,* the
" Inhabitants of North America cure the Ve-
" nereal Difeafe as effectually as we do with
" Mercury. My friend *Dr. Winter,* profeffor
" of Botany at Buda in Hungary, difcover-
" ed, lately, that the inhabitants in the confines
" of Turkey *cured themfelves of the Lues in all*
" *its ftages,* by a decoction of the *Aftragalus*
" *exfcapus.*"

WHOEVER doubts the efficacy of fuch Remedies, from their want of gravity with which Mercury is endowed, need only attend to a curious experiment to remove fuch groundlefs

less surmises: Viz. the bones of animals, who have for some time eaten their food with a mixture of *Madder-root*, acquire a florid, *red colour*, even in their most solid and compact parts: This circumstance is remarked by the late *professor Monro*, in the following manner. "The clearest demonstration of the intimate distribution of small arteries, is to observe the effect of such a tinging substance, as can retain its colour when swallowed, digested, and mixed with the blood of any living animal, and at the same time has particles small enough to be conveyed into the vessels of the bones; such is RUBIA TINCTORUM, Madder-Root;* for we see the gradual advances which this tincture makes from the periosteum into the more internal parts of the bones, and how universally the distribution of liquors is made, the whole bony substance being tinged."

K HENCE,

* Philos. Transact. Numb. 442, Art. 8. Numb. 443, Art. 2. Numb. 457, Art. 4. Mem. de l'Acad. des Sciences, 1739, 1743.

HENCE it is evident that all parts of the body, even the bones themſelves, abound with veſſels infinitely ſmall, and are pervious to the ſubtile particles of medicinal ſubſtances, which, with the blood ſtrongly impregnated by their virtues, may be tranſmitted to the diſeaſed parts in ſuch manner as to effect a perfect cure without injury to the conſtitution.

MERCURY is extremely improper, where the *Venereal Lues* is complicated with *Gout or Scurvy*; for, both theſe diſeaſes have been found, by experience, to be aggravated by its uſe. It is alſo improper where the venereal diſeaſe is combined with *Scrophula* or Leproſy: In ſuch caſes, the ſymptoms, although alleviated for a time, returned after its uſe, with more ſeverity than before; yet it ſtill continues indiſcriminately to be directed; and ſo dangerous is that miſtake, of rating the patients ſafety by the quantity of mercury adminiſtered, that it has been deſtructive to the conſtitution of thouſands.

THE

THE Mercury-miners are always ſhort-lived,* for in a few months they begin to tremble and ſcarcely any of them live to the third year: Alſo according to *Ramazini*,† from the authority of ſeveral writers, they die miſerably, being affected with *Palſies*, *Vertigo*, and *hectic Fever*.

BACKSTROM, a Dutch Phyſician, together with *Hoffman*, both condemn the uſe of Mercury in the *Scurvy*, and *Etmuller* obſerves it is ſo pernicious in that diſeaſe, that the Dutch abſtain from it even in *Venereal Caſes*, leſt they ſhould be complicated with it.

‡ KRAMER alſo informs us, that four hundred of the Imperial troops in *Hungary*, near *Belgrade*, who took *Mercury* without his advice, died by the fatal conſequencs of a Salivation, with the *loſs of their Teeth and Gums*.

* Fallop. Tract. de Metall. et Foſſilibus.
† De Morb. Art.
‡ Krameri Diſſert. Epiſtol. de Scorbuto.

IN all cafes, therefore, of *fcrophulous*, and *fcorbutic acrimony*, or *a venereal taint*, which like the *Scrophula* often falls upon the lungs, and occafions a *Confumption*; it will be neceffary to have recourfe to fuch *alterative Medicines* as tend to correct, and have the power to evacuate the offending humours; for, if the *Cold Bath* or *Tonics* fhould be incautioufly directed in fuch cafes; by bracing the folids, they would not only concentrate and lock up the caufe of fuch difeafes, but by repelling the blood to the weak internal parts, might greatly endanger the conftitution.

THE caufe of Gout and Scrophula has long been fuppofed to refide in the blood and juices, but of late, this opinion has, by fome few, been fet afide and another adopted, viz. that it originates from *vitiated ftamina*, and not from a morbid ftate of the fluids.

IN fupport of this new Theory, we are told, that the *Scrophula* is not an infectious difeafe; its morbid matter not being exhaled by perfpirable fluid on the furface of the body; a prefumption,

presumption, that it did not reside in the fluids, but in the solid system.

THAT the disease is not infectious, is not to be disputed; but this proves nothing respecting the new opinion to be established; for, the Venereal Infection confessedly lodged in the fluids, is equally incapable of being communicated by effluvia, as the Scrophula itself.

IT has also been asserted, that there is no proof of morbid matter in the fluids, being the cause of Gout; or that such cause is always present in the constitution.

THAT the cause of Gout is always present in the constitution, is *incontestibly proved* from the following well-known fact; namely, that hæreditary gout is transmitted from the father to his offspring, and from thence to succeeding generations.

BUT although the cause of those diseases should exist in the solids; seeing that the diffe-

rent qualities of our fluids chiefly depend on the peculiar diſpoſitions of their ſtrainers, they would from thence, like the ſolids, ſoon become vitiated and concur with the former cauſe in aggravating the diſeaſe; as we have obſerved, that the fluids of the body are conſtantly converted into ſolids.

BUT general, and accurate obſervations eſtabliſhed upon repeated, practical facts, need little argument for their ſupport, when oppoſed to ſpecious conjectures and ſurmiſes reſting upon individual authority; and we only deſire to remark; that the ſudden relief produced by *critical Eruptions*, and the bad conſequences of repelling them; the copious ſediment in the urine of *Arthritics*, and the chalk-ſtones frequently depoſited in their joints, all inconteſtibly prove, that the gouty matter, whatever it is, *reſides in the fluids and not in the ſolids of the body*. Reſpecting the *Scrophula*, the enlargement and ulceration of the glands, the diſcharge of ſharp, corroding humour from the ſores, attended with *inflammation of the Eyes*, and excoriation of the cheeks, clearly indicate

dicate the exiſtence of acrimony in the blood and juices, and are ſo many effects of that evident cauſe.

THE limits of this Eſſay will not permit me to enter into a minute diſcuſſion of the various opinions which have prevailed reſpecting the cauſe or eſſence of *Gout*; it will only be neceſſary to ſpeak of the diſeaſe in its *irregular ſtate*, which happens more frequently than that terminated by regular fits; and when ſevere, is attended with much greater danger; for, inſtead of fixing like the former upon the extremities of the body, it often retreats to the vital parts, particularly, the *Stomach and Bowels*, where if neglected, or improperly treated, it frequently becomes fatal. However, before we proceed to lay down *Rules and Cautions* for the obſervance of thoſe who are ſubject to this *irregular* malady; if we may hazard a conjecture, the moſt probable *cauſe of Gout* ſeems to be, the *retention of rigid, earthy particles* taken into the body with aliment, which it is ſometimes unable either to expel by the excretions, or ſubdue by its circulating power.

THE aſperity of thoſe particles may eaſily be conceived to occaſion exquiſite pain, by vellicating and wounding the tender ſolids where they are depoſited. When collected in the joints of *arthritics*, in form of chalk-ſtones, they appear to be of the ſame nature with thoſe found in the bladder; ſo that a diſpoſition to form gravel in the kidneys, ſeems nearly allied to a gouty conſtitution; for gouty patients, in the decline of life, are obſerved to be extremely ſubject to the Stone and Gravel.

WATER contains a conſiderable quantity of this ſabulous, earthy matter, as appears by the ſtony incruſtation adhering to the inſide of old water-pipes, tea-kettles, and other utenſils long uſed in boiling water.

MOST Wines abound with *Tartar* difficult of ſolution in water; but whether this ſaline concrete taken into the human body, and there remaining unaltered by its aſſimilating power, be the cauſe of Gout, as many have ſuppoſed, it is not eaſy to determine; although the fact is

certain,

certain, that those addicted to the immoderate use of Wine, are of all others most subject to that disease; and on the contrary, others who have confined themselves to water-drinking, or malt liquors, are seldom affected with it.

CYPRIANUS, the celebrated Lithotomist, asserts, that among many hundreds he had cut for the stone in the bladder, he never met with one who had constantly drank *Ale or Beer*; and indeed, such as abstain from Wine, and drink those liquors, are seldom afflicted with Gout.

THE *irregular or anomalous Gout* diffused over the habit, by some also called *atonic, suspended, or internal Gout*, is difficult to be distinguished from other diseases, as it often resembles those peculiar to certain parts of the body, and from which *none are perfectly free*; but, of all others, it is most apt to visit the *Stomach and Viscera*, where it occasions loss of appetite, indigestion, with excessive flatulence, and sometimes vomiting; also colic pains, diarrhœa, and profusion of bile. When it attacks the head, it is attended with pain, giddiness, loss of memory,

memory, and even Apoplexy, eſpecially in the decline of life. If it falls upon the Lungs, it produces difficulty of breathing reſembling Aſthma; if on the Brain and Nerves, it is followed by dejection of ſpirits, or melancholy. A palſy of the lower extremities has alſo been the conſequence, eſpecially if it is attended with *Lumbago* or violent pain in the loins, which is not confined to Rheumatiſm, but is alſo a ſymptom of this *Proteus-like diſeaſe*, which ſometimes ſuddenly ſhifts from the back to the ſtomach.

THOSE who are ſubject to *Gout, whether regular or irregular*, are commonly viſited by it in the *Autumn*, or *Spring* which is the more favorable ſeaſon; for, that being ſucceeded by a warm ſummer which opens the pores, and allows the gouty matter to tranſpire, the diſeaſe is rendered leſs violent.

WHEN the powers of nature languiſh, and are either inſufficient to produce a regular fit, or where, from the effect of age, there is not ſtrength of conſtitution to throw gouty matter upon the extremities of the body; then there

there is great danger of its retreating to the internal, vital parts, where it produces nausea and sickness, loss of strength, attended with darting pains, uncommon tenderness of the feet, and irksome, unpleasurable feelings: The patient is low-spirited, peevish, impatient, and disturbed by the most trifling, accidental causes.

In this situation, he is also frequently troubled with the *Arthritic Colic* or gouty twinges in the bowels; sometimes with weight and oppression of the breast; particularly, after anxiety of mind, or exposing his body to easterly winds, or night air. Such symptoms of irregular Gout are always attended with great danger; especially, in broken constitutions which have suffered from intemperance or other causes.

This gouty affection of the bowels is often attended with a *diarrhœa*, which if moderate and succeeded by abatement of pain, with a return of appetite, and natural rest, is a critical discharge, and ought not to be stopped. On the contrary, where the symptoms are violent, with

with pain, ſickneſs and bilious vomiting accompanied by fever; Opiates, Aromatics, and Cordials ſhould immediately be adminiſtered, or the diſeaſe may put a period to the patient's life. A ſtrong infuſion of *Mint* in warm ſpiced Claret will be proper; aromatic fomentations ſhould be applied to the ſtomach and belly, and warm opiate clyſters injected; but above all things, the *camphorated mixture with tincture of Opium* ſhould be liberally adminiſtered.

THE *Arthritic Vertigo* or ſwimming in the head, with which the Stomach holds ſympathy, is equally dangerous and one of the moſt alarming ſymptoms of irregular Gout; for, if it is not ſpeedily relieved by proper means, or by a regular fit, it frequently terminates fatally in *Apoplexy*. The following ſymptoms denote this dangerous malady: The face is turgid, and of a more livid hue than uſual; the eyes are blood-ſhot, the tongue falters, the memory fails, the ſteps are unequal and ſtaggering, and the patient cannot hold down his head, or quickly turn round, without the danger of falling on the ground.

IN

IN *irregular Gout*, the intention of cure will be, to expel the gouty matter from the internal, vital parts, and to *invigorate and fortify the Stomach and Bowels* in particular. For this purpoſe, the *camphorated mixture*, with the addition of *Hoffman's anodyne liquor*, and occaſionally the *tinctures of Antimony, and Opium*, are ſuperior to all other medicines, and properly directed, will, in a manner, render the reſt unneceſſary.

WHERE the ſtomach becomes *torpid*, and inſenſible from a gouty attack, and affected with ſymptoms of great violence; warm Madeira wine, ſpiced claret, or even the *volatile, aromatic Spirit*, in Ginger or Pimento tea, will be proper. Bottles of warm-water, wrapped in flannel, ſhould be put to the ſoles of the feet, and carded wool, or fleecy hoſiery applied warm to the pit of the ſtomach and abdomen.

IN ſuch urgent caſes, I have directed the following medicine, and frequently with very ſpeedy and extraordinary relief to the patient.

TAKE

TAKE of the Camphorated Mixture of the new, London Difpenfatory, eight ounces; Hoffman's Anodyne Liquor, two drams; tincture of Opium, one dram.

THIS mixture may be taken in the quantity of a tea-cup full, every three or four hours, or as often as the nature of the fymptoms require; it will warm and invigorate the nerves of the ftomach, expel wind, and abate pain.

SHOULD the violence of pain threaten inflammation of the *bowels*; Blifters fhould be applied without delay to the infide of the legs, and arms, and the patient fhould lofe blood, in quantity proportioned to the urgency of the fymptoms.

IF the body be coftive, ten grains of fine *Rhubarb*, in powder, may be given occafionally, with half a dram of aromatic Confection, till it gently opens the bowels; and when the ftomach is greatly oppreffed with bile, flatulence, or a load of crude humours; an infufion of Horfe-raddifh or muftard-feed may be drunk copioufly, till the Stomach rejects it and is thoroughly cleanfed.

EMETICS,

EMETICS, by the efforts of vomiting, though objected to by ſome, and with great reaſon, where there is tendency in the Stomach and Bowels to *inflammation*, or where the veſſels of the brain are overcharged with blood; will, notwithſtanding, often produce a good effect, after bleeding, by diſlodging Gout from the Stomach and expelling it to the extremities of the body. This ſeems to be brought about, by their powerful ſtimulus, and the conſequent agitation of the whole *abdominal Viſcera*, by which, a larger quantity of blood is driven to the ſurface, and the pores of the ſkin are forced open; hence, by a *change of circulation, the ſeat of the diſeaſe may alſo be happily changed.*

WHEN Cramps or Spaſms affect the legs, or ſhould an inflammatory ſwelling on the feet ſupervene the ſymptoms of irregular Gout, with abatement of the diſeaſe; it is a good ſign, and fortels a favourable event. It may then be proper to invite the gouty matter to the extremities by putting the feet in warm-water, which will relax the ſkin and open the pores. If the inflamed

inflamed part is attended with much pain or a considerable degree of fever; Leeches may be applied; the camphorated mixture, with the addition of Manna, may be occasionally taken, to render the body laxative; and the patient should be kept in a gentle perspiration, by remaining still and quiet in bed, leaving the rest to nature.

WHERE this Gouty disposition is complicated with a *scrophulous*, *scorbutic*, or *venereal taint*, its symptoms are extemely anomalous and diversified: Sometimes eruptions appear on the body and limbs, preceded by wandering pains, head-ache, and hectic fever; with cramp or spasmodic twitches of the muscular parts.

WHATEVER causes weaken the vital power of the body, or suspends its natural secretions or excretions, will subject the patient to this fluctuating disease; and therefore, it is often the consequence of long continued chronic ailments, anxiety of mind, or much bodily fatigue; intense study, intemperance or a sedentary, monastic life: To these may be added, excessive

Venery,

Venery, a Salivation, or the *immoderate uſe of Mercury*; but whatever may be the cauſe, obſervation affords convincing proofs, that where this diſeaſe has proved fatal, many have been deſtroyed by improper treatment, from their own indiſcretion; namely, by volatile liniments and ſpirituous applications, errors in diet, or cold air acting with violence on the ſurface of the body, by which the gouty matter has been repelled and driven inward upon the vital parts.

ALTHOUGH the *Scurvy* is a diſeaſe which does not ſo much affect the ſtomach, as the general habit; nevertheleſs, it ſometimes produces *obſtructions of the abdominal Viſcera* which are followed by jaundice, dropſy or a bloated ſtate of the ſolids, attended with evident ſigns of the higheſt putrefaction; alſo violent pains in the belly, with dyſentery, or a diſcharge of corrupted blood by ſtool.

THE diſtinction of land and ſea ſcurvy is without juſt foundation, and it is now almoſt univerſally allowed by the beſt writers that there is only one ſpecies of that diſeaſe; its proxi-

mate caufes being always the fame, viz. cold, moift air, falted, indigeftible, putrefcent food; and fuch other exciting caufes as diminifh the vital powers of the body; namely, anxiety of mind, over-fatigue, the unfavourable crifis of acute difeafes, or the long continuance of fuch as are chronical. Its feveral fymptoms feem to arife from different degrees of the difeafe, variety of climate, and the difference of conftitution upon which its caufes operate.

THERE is no difeafe more fallacious and uncertain in its event, or more unaccountable in fome of its fymptoms, than the Scurvy; many of thofe whofe appetite for food remained unimpaired and perfect to the laft, and without complaining much of any thing but lofs of ftrength; from fudden motion of the body, or change of air, have unexpectedly been feized with fainting fits, and prefently expired.

THAT the ftomach, even in its depraved ftate, fhould ftill preferve the faculty of craving food, in the moft inveterate degree of *fcurvy*,

vy, even when the blood and juices are manifestly corrupt, and the body almost falling to pieces by a putrid dissolution, is a circumstance, worthy of remark, equally extraordinary and unaccountable; particularly, when we consider the opposite effect produced on that organ, by sudden *grief or anxiety of mind*, where both appetite and digestion are instantly taken away, although the solids and fluids remain sound and intire. So extraordinary are the changes produced upon the animal body, from causes, which seem inadequate to their effects, or where the effects imply causes which are beyond the reach of our comprehension.

As it has been allowed that cold, moist air is productive of scurvy, so it has been experimentally found, that a dry, temperate atmosphere, warm clothing and flannels worn next the skin, with moderate exercise, which promote perspiration; will powerfully contribute to its relief and cure. But, although the use of much salted putrescent animal food has always been deemed a principal cause of the disease;

whether the morbid effects are produced simply by *salt*, or its rendering animal substances indigestible, or from their being putrid, are questions which still remain in dispute among physicians. Be this as it may, it is certain, that plenty of pure water, fermented liquors, ripe, acescent fruits, and succulent, green vegetables, or even a few cabbages cut fresh from their stalks, and liberally used by the patient for food, will contribute more to his cure than all the medicines in the *Materia Medica.*

THUS the nature and treatment of *Scrophula, venereal Lues*, the *irregular Gout* and *Scurvy* have been considered in a concise and general way; the limits of this short Essay not allowing of farther discussion, than what merely regards their morbid effects upon the *Stomach and Viscera.* Respecting such disorders as arise from *redundant Bile*, and their remedies, they have been mentioned at page 13, in a manner sufficient to shew how far the Stomach and Bowels may suffer by its depravity or excess, and will be farther considered in the sixth

ſixth ſection of this Eſſay on the *Morbid Affections of the Liver.*

THE *violent Paſſions of the Mind*, and their pernicious effects on the functions of the Stomach, have been particularly remarked in the third ſection of this Eſſay; and, it is here only neceſſary to ſpecify, that when loſs of appetite, and digeſtion are the conſequence of ſuch impreſſions, nothing will ſo much tend to reſtore them, as *chearful company and travelling*, which, by continually ſhifting the ſcene, will divert the mind and call off its attention from the cauſe of its diſtreſs; which, if not ſeaſonably removed, is often terminated by low ſpirits, and fixed *melancholy*.

To ſuch, retirement and reſt of body which they deſire, are deſtructive; for, whilſt they remain unemployed, they become a prey to their own painful reflections, and are caſt down by the ſad, and ſickly ſenſations of a deſponding mind. On the contrary, *exerciſe*, the converſation of affectionate friends, and muſic,

will all be highly beneficial. In a word, by agitation of body, and a variety of objects presenting to the mind, it will experience new impressions, and consequent ideas contributing to dispossess it of those it entertained before.

SINCE we find, that painful sensations of the mind will destroy health, occasion melancholy and diseases of the nervous kind; by parity of reasoning, it may be concluded, that pleasurable feelings of a contrary nature, will bid fair to restore it, especially when assisted by proper and powerful medicines, viz. preparations of *Peruvian Bark*, *Chalybeates*, and the *Cold Bath*.

IT is not easy to comprehend the train of evils brought upon the constitution by HABITUAL COSTIVENESS, except by those who have experienced its oppressive effects.

THE *Stomach and Bowels* cannot be distended beyond a certain degree, without creating pain; but, that will be different, at different times, according to the *sensibility* and *irritability* then existing in the habit of body; thus, when preternaturally

ternaturally tender, irritable, or inflamed; wind, or *ingesta* which, put them upon the stretch, will occasion intolerable pain, sickness, and oppression, which, in their sound state would produce no such bad effects.

THE retention of fœces longer than is natural, by distending the alimentary tube, will weaken its fibres, and from the pressure it occasions on the contiguous viscera, obstruct the circulation, and prevent that free and equal distribution of blood through their several vessels which is necessary to support the secretions and maintain health. Those which are most vascular, and sustain the greatest pressure, by interruption of their functions, will suffer most; namely, the Stomach, Liver and Mesentery. From the same cause, the blood being obstructed in the inferior vessels; those sent to the superior parts will be overcharged with it, and the head affected with pain, stupor, or giddiness, confusion of ideas, and loss of memory.

THE Stomach in particular is greatly injured by *Costiveness*; for, when the alimentary tube,

proceeding from it, is thereby obſtructed, it will neceſſarily be oppreſſed and deficient in its office; hence, want of appetite and digeſtion, attended with ſickneſs or vomiting; and frequently the hæmorrhoids or piles.

A COSTIVE habit of body may proceed from various cauſes, viz. from *a defect, or obſtruction of Bile,* or its not being ſufficiently exalted to ſtimulate the inteſtines, and quicken their expulſive motion; from the liberal uſe of *Opium* which diminiſhes their irritability and ſuſpends their power; or from the abuſe of *ſudorifics, and draſtic purgatives* which rob the inteſtines of their natural moiſture; or *aſtringents* and ſpirituous liquors which contract their veſſels and lock it up.

IN conſtipation of the bowels from want of bile, or where it is too thin and watery; the herb *Fumitory infuſed in* runnet whey, with a ſmall portion of lixivial ſalt, will be found an effectual medicine; but in thoſe of cold phlegmatic conſtitutions; equal parts of almond *ſoap and aloes* may be taken in pills with more advantage.

Where

Where there is thirſt, and fever; a ſolution of the *Cryſtals of Tartar, with a ſixth part of Borax,* in the proportion of one ounce in the whole, to a quart of pure water ſweetened with manna or honey to render it palatable, I have found a moſt grateful and efficacious, neutral laxative; it is not only gently ſolutive, but alſo promotes the urinary diſcharge, abates febrile heat, and reſiſts putrefaction.

In thoſe of plethoric habits, affected with head-ache or nauſea at ſtomach; the ſaline draughts will be moſt proper; and diet of a cooling, laxative quality ſhould be uſed by the patient; as that with ſtewed red cabbage, or beet-root, ripe fruits, new figs or raiſins; runnet whey with honey, freſh wort, ſoft ale, &c. to which may be added, Seltzer water for common drink.

There is another ſpecies of habitual Coſtiveneſs which has been little attended to, and which requires a very different method of treatment. This ariſes from a weak, debilitated ſtate

ſtate of the bowels, and their want of ſufficient expulſive power to diſcharge their contents. Thoſe who are advanced in life, and much reduced in ſtrength by preceding illneſs, are the moſt ſubject to this malady; in the cure of which, I have found large and repeated doſes of the *Peruvian Bark with a fourth part of crude Tartar* an effectual remedy given in the form of an electuary, with ſyrup of roſes. It ſeems to act by giving more ſtrength and firmneſs to the fibres of the inteſtinal canal.

When the bowels are weak and inactive; riſing more early in the morning, exerciſe, the fleſh-bruſh and cold bath will be found beneficial.

To preſerve the body in the due exerciſe of its functions; every one who eats plentifully, ſhould generally have two motions each day; and the great Mr. Lock, in his treatiſe on education, points out the neceſſity of this inteſtinal evacuation as greatly contributing to health; towards which it will, therefore, be proper for every one, night and morning, to ſolicit the call of nature, till it becomes a conſtant habit; by which

which means he will in a great meaſure, avoid the inconvenience of coſtiveneſs, and all its diſagreeable conſequences.

HABITUAL DIARRHOEA occaſioned by grief or diſtreſs of mind, by ſome *deemed incurable*, is a diſorder of the bowels directly oppoſite to the former. This complaint ſeems plainly to be an *atonic affection* of the bowels, and to proceed from diminution of their nervous power, as well as from obſtructed perſpiration which generally attends it. I am convinced, by experience, that conſtant exerciſe on horſeback, and taking pleaſant journeys, with chearful company, in an open carriage, and dry, pure air, where new objects ſtrike the eye, and engage the attention, with the uſe of a fleſh-bruſh, and flannel worn next the ſkin, will always relieve, and often perfectly cure this obſtinate diſeaſe. If the patient has not natural reſt, it will be proper to direct the *Camphorated Mixture, with Tincture of Opium and Antimony*, which will invigorate the nerves, promote perſpiration, and procure ſleep.

THERE

THERE are certain occupations in life which particularly ſubject men to *Diſeaſes of the Viſcera*, from painful preſſure and long-continued poſitions of the body, which, from cuſtom, they are not ſufficiently ſenſible of.

STUDIOUS perſons, who are uſually inactive, by too much reſt of body, and intenſe exerciſe of mind, become weak, *enervated*, and *hypochondriacal*: The ſtomach loſes its digeſtive faculty, and the head is afflicted with a giddineſs and ſtupor. By the ſedentary ſtate of the body, compreſſion of the Viſcera, and want of perſpiration; many *Diſorders of the Stomach and Bowels* are brought on. The ſecretion of bile in the liver is thus prevented, and its paſſage into the inteſtines retarded; whence proceed, *Coſtiveneſs*, and *Piles*, the formation of *calculous concretions* or *Gall-Stones*, and *obſtruction of the meſenteric Glands*.

THOSE in particular, employed in compting-houſes, of which, in this vaſt metropolis, there are very many, contract the pernicious habit of reſting

resting the weight of their breast against a table or writing-desk, the body at the same time being half double. This external violence, with the impure air they breathe in such confined places, has, in a thousand instances, been the evident cause of *consumption*, and *visceral diseases*, especially of the lungs, the stomach and liver, which no medicine could remove, whilst their cause continued, and which therefore have frequently had a fatal termination.

BUT, the dangerous consequence of external pressure on the abdominal Viscera may be more fully demonstrated by observing the effect of *tight Lacing* in the female sex; a custom so prevailing, though unnatural and pernicious, that it requires the most serious consideration.

BY the violent, mechanical pressure of *narrow Stays, or tight lacing*, the *internal vital organs will be partially displaced*, and the body thrown out of its natural direction; consequently distortion will ensue, particularly in young subjects, who are in a growing state. Under such circumstances, the whole abdominal Viscera

cera being compreſſed, eſpecially the *Stomach, Liver, and Meſentery*, the circulation of blood through their numerous veſſels being thereby obſtructed; *the due performance of their vital functions will be prevented, without which, neither health or life can long ſubſiſt.*

THE violence of ſuch preſſure will alſo change the courſe of the blood; and, by ſtrangulating the exterior veſſels, thoſe internally will be overcharged with a redundant quantity: Hence, the more delicate parts, viz. the brain and lungs, being diſtended and inflamed; the patient will be affected with ſtupor, and head-ache, difficulty of breathing, and a ſtrong, feveriſh breath.

THE conſtriction of tight ligatures round the waiſt will alſo prevent the heart, which is the principal agent of circulation, from diſcharging its blood, by the arteries, for the nouriſhment of the body; or its being freely returned by the veins; and from this cauſe will proceed oppreſſion and palpitation of the heart, fainting,

fainting, ſwelling of the legs, *fluor albus*, and profuſe periodical diſcharge; obſtruction of the lymphatic veſſels, and meſenteric glands; inflammation of the lungs, and ſpitting of blood, frequently terminated by an *incurable Conſumption.*

IN a word, this prepoſterous and pernicious cuſtom, which prevails more or leſs, as faſhion points the way, disfigures the body, deſtroys the natural eaſe and elegance of the ſhape, and has been the cauſe of bringing many of the female ſex to an untimely grave.

ALMOST innumerable are complaints of the *Bowels* ariſing from *Worms*, to which women are more ſubject than men, from the ſame cauſe, that children are more troubled with them than either, viz. a weak, inactive ſtate of the ſtomach, and the want of ſufficient digeſtive power to deſtroy the *ova* or eggs of thoſe reptiles, when firſt depoſited there.

WORMS are chiefly of three kinds, namely, *Aſcarides* or ſmall white Worms, which are generally confined to the *Rectum* contiguous to the

the fundament; the long, round Worms or *Teres* which infeſt the ſmall guts and ſtomach; and the *Tenia* or Tape-worm, more dangerous than all the reſt.

THERE is no diſeaſe of the *Stomach and Bowels* where information is more neceſſary than in that proceeding from *Worms*; either reſpecting the ſymptoms denoting their preſence, or the means by which they may certainly be deſtroyed; more eſpecially, as their exiſtence in the human body is much more frequent than is generally imagined, and often the unſuſpected cauſe of ſymptoms imputed to other diſeaſes.

THOSE inteſtine enemies, particularly the *Tenia lata* or tape-worm, more deſtructive than all the other verminous ſpecies, not only feed on the chyle, and deprive the body of nouriſhment, but alſo gnaw and vellicate the fine, nervous lining of the inteſtines, and occaſion ſymptoms ſo violent and extraordinary, as in the days of ignorance and ſuperſtition, to have made it ſuſpected the patient was under the influence of *Witchcraft*.

WORMS

WORMS, if not totally deſtroyed, will ſoon renew their breed. This is beſt prevented by mixing purgative medicines with *anthelmintics*, which will deaden their power, and expel them from the body, before they have time to revive; eſpecially, if they are continued for a conſiderable time.

THE more effectually to prevent them from generating again, it will alſo be proper to *ſtrengthen the ſtomach and bowels* with chalybeat bitter wine; a ſtrong infuſion of Peruvian bark; or by directing the uſe of *Lime-water*. The patient ſhould now and then drink a glaſs of generous wine, ſuch as red Port, Madeira, or old Hock.

ÆTHIOPS *mineral*, a compoſition of mercury and flowers of ſulphur, is not ſo efficacious as mercury divided with conſerve of roſes. For in the firſt preparation, mercury by being united with ſulphur, becomes fixed and inactive; ſo that if worms are deſtroyed by this medicine, it ſeems more owing to the ſulphur. And indeed, the efficacy of Harrow-

gate water, which is ſtrongly impregnated with ſulphur, ſhews its extraordinary power in ſuch caſes.

DEAD worms, with abundance of mucus, have ſometimes been evacuated after *malignant fevers*; a proof, that exceſſive corruption in the juices of the body then prevailed.

THIS *mucus* is not the cauſe but effect of thoſe vermin; being only the glue of the inteſtines, immoderately diſcharged, in conſequence of their painful ſtimulus, ſimilar to that from the noſe, occaſioned by ſnuff, or the thick, ropy fluid voided with urine, from irritation of a ſtone in the bladder; but ſuch mucus ſeems to afford them a proper *Nidus* or hatching-place.

IT is a mortifying circumſtance that worms are not confined to the bowels, but ſometimes have their reſidence in the *Liver*, and other parts of the body, even in its ſolid ſubſtance. I once attended a gentleman, then juſt return-

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ed from *Guinea*, in whoſe legs were found ſmall worms, reſembling a fine white fiddle-ſtring.

LIVID pimples, attended with violent itching, appeared in ſeveral parts of his legs and thighs, which being broken, this extraordinary worm came forth, and being ſecured upon a piece of twiſted paper, was gradually rolled up every day, till the whole, of a vaſt length, was extracted.

A CASE of this kind is mentioned by Dr. *Mead* in his medical cautions. He deſcribes the worm as an aquatic inſect, with a ſharp head and ſlender body, which works itſelf into the fleſh of thoſe bathing in the water, and is moſt commonly found in Africa and the Eaſt-Indies. This worm (*Dracunculus*) is alſo particularly mentioned by *Avicenna*.

NEGRO-SLAVES who feed groſsly, and chiefly upon vegetables, are more ſubject to worms than the *whites*; as are alſo the children of common people in this country, who eat large quanti-

ties of fruit in Autumn, eſpecially thoſe fallen from trees and remaining long on the ground, where *Inſects* perforate ſuch decayed vegetable ſubſtances and *depoſit their Eggs*, as in a proper hatching-place. Green peas, nuts, and many garden-fruits, particularly *raſpberries* are full of maggots; but although we ſhall hereafter remark the permanent, and powerful energy of the *vital principle*; whether they are ſubdued by the digeſtive faculty of the ſtomach, or brought to maturity in the inteſtines, is a queſtion not eaſily anſwered.

As three ſorts of worms have been found in the human body, and each of thoſe being a diſtinct ſpecies, namely *Aſcarides*, *Teres*, and *Tænia*; it may be aſked, how they are generated, or by what means they get there? Which of them are *oviparous*, *viviparous*, or like the *Polypus* produce their ſpecies in a more anomalous manner? What are the particular ſorts of Reptiles which having ſeverally depoſited their ova, or *vermiparous* rudiments in the ſtomach

mach or inteſtines produce the three diſtinct ſpecies of *Aſcarides*, *Teres*, or *Tænia?*

THESE queries being truly anſwered from *experimental facts*, and not from conjectures or ſurmiſes, would afford the beſt and ſureſt means of avoiding their bad conſequences; by pointing out thoſe very animals which produced them, and alſo the very alimentary ſubſtances by which their rudiments found admittance into the human body.

ARE *Teres* or round worms of the ſame ſpecies as the common earth-worm which they nearly reſemble, and are by *Linnæus* included under the *ſame genus?* And is the ſmall difference of appearance owing to their difference of food, and place of reſidence within the living body?

ARE infants ſubject to worms during the time of their being ſuckled at the breaſt?

HAVE worms ever been found in the ſtomach or inteſtines of ſtill-born infants?

THE *general ſymptoms of worms* are, a wan ſickly countenance, itching of the noſe and ſwelling of the upper lip; the appetite is voracious at one time, and deficient at another, attended with pinchings in the bowels, tumefaction of the belly, and looſe, pale, mucous ſtools, although at particular times, the body is uncommonly *coſtive:* The pulſe is generally very irregular, the breath offenſive, attended with a ſhort, dry cough, ſtartings in the ſleep, faintings, and ſometimes loſs of ſpeech, or couvulſions; eſpecially in caſes of *Tænia lata* and *Tænia cucurbitina* which are both of the tape-worm kind. Theſe general ſymptoms are often attended with the moſt painful ſenſations of the ſtomach and bowels, and, if not ſoon relieved, with univerſal weakneſs and waſting of the body, or that ſpecies of conſumption called *Maraſmus.*

IT cannot now be wondered at, as before, that the tape-worm is with ſo much difficulty deſtroyed, ſince it has been diſcovered to poſſeſs the extraordinary power of *reproduction,* ſimilar

ſimilar to that of the *Polypus*; ſo that if any fragment of it remains, *it will regenerate and each portion become a diſtinct worm* continuing to torment and keep poſſeſſion of the body.

SINCE theſe are the ſymptoms of the *Tænia* as well as ſome others of the verminous ſpecies; what ſhall be ſaid of the opinion which ſome have adopted, that worms may remain in the inteſtines without injury; nay more, that in young ſubjects, they are rather of ſervice, by conſuming the ſuperfluous crudities with which their bowels are loaded? If this ſuppoſition be true, we may then, for the ſame reaſon, conclude, that a cabbage will thrive better when it ſwarms with caterpillars. Should ſuch extravagant aſſertions deſerve a ſerious reply, we need only mention the obſervation of practical writers, who have mentioned caſes, where worms, like *Leeches*, by their cloſe attachment to the inteſtines, had perforated their coats and were found in the cavity of the abdomen: This circumſtance has alſo happened

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in quadrupedes, of which, a medical gentleman aſſures me he ſaw an inſtance at Minorca, in a ſmall, Spaniſh horſe, deſtroyed by thoſe vermin, where the guts were actually gnawed through, and the worms (Botts) had made their way into the belly.

THUS we may ſee with ſurpriſe, that ſome animals are produced in a manner very ſingular and *anomalous*, as I have elſewhere obſerved more at large:* A *Polypus* cut into parts, will generate ſo many diſtinct Polypi: How ſtrangely different then is the effect of the ſame cauſe in animals of different ſpecies, ſince the diviſion which deſtroys animal bodies in general, tends to reproduce and multiply that of a *Polypus!*

THIS extraordinary creature may be conſidered as an *intermediate link* to the different orders of animal and vegetable bodies; for, the ſenſitive faculty of the firſt, may be perceived to deſcend gradually in the ſcale of animal

* Lecture introductory to the Science of Midwifery; quarto, page 12.

nimal beings, till it dwindles into the inanimate growth of plants. As nature insensibly drops the animal process, she begins to play the wanton, and transgress her own laws. Thus *snails and earth-worms*, according to *Swammerdam*, are all of the hermaphrodite kind, and whilst they impregnate are reciprocally impregnated; and that uncommon reptile the *Surinam toad* does not produce its young from the interior parts of its body, like other animals, but from certain cups or sockets upon its back.

THE *Abbé Spallanzani*, as well as *Réaumür*, have observed, that this property is not peculiar to the *Polypus*; for, they have discovered that *Earth worms*, cut in peices, and some other animals, are endowed with the same faculty of *reproduction*; which I have had the satisfaction to confirm, in the first, by some experiments which came under my own observation. The same author asserts that the heads of land-snails, and legs of young frogs, are regenerated in the like wonderful manner; and farther, that upon the most accurate examination,

nation, they are found to differ in nothing from thoſe parts in their original ſtate. In ſuch ſtrange deviations from the ſtated law of nature, though our ſenſes give evidence, we can hardly aſſent to their reality.

THESE extraordinary and well-eſtabliſhed facts, however, enlarge our ideas, and extend the limits of natural knowledge, demonſtrating, at the ſame time, the vaſt activity, and *permanent energy of the vital principle,* which, in vegetables, as well as animals, is remarkably prevalent; for trees cut down, or torn up by the roots, after their limbs have been lopped off, ſtill retain their vegetative principle, by the power of abſorption, and in ſo high a degree, as to throw out vigorous ſhoots or branches from the trunk though apparently dead.

LESSER, in his Teſtaceo-theologia, aſſerts, that the *Balani Marini, rock-muſcles, and Oiſters,* are not only *hermaphrodites,* but ſuch as without any concurrence with each other have within themſelves a power to generate, and bring forth their kind. An impregnated *female Aphis* or plant-louſe can communicate

municate to her offspring the extraordinary power of producing others in ſucceſſion, even to the fifth progeny, without any freſh impregnation; and, what is equally aſtoniſhing, we are told, that the ſame ſpecies of *Aphis* which in Summer was *viviparous*, becomes *oviparous* in Autumn: It is alſo wonderful that the *Coccus*, and *Oniſcus*, no ſooner bring forth their young, than they devour them; and laſtly, if we deſcend to vegetables, however ſtrange it may appear, certain it is, the *farina* or ſeed of the male flower impregnates that of the female, otherwiſe no fruit would be produced; for *Linnæus* obſerves the Savin tree was fruitful in the Upſal garden, where the male plant grew near it, but in the Clifford garden, where the male was wanting, there was no fruit at all.

BUT the moſt extraordinary production in nature of the vegetable tribe, is the *Gramen Parnaſſi*, flore albo: It grows in meadows, and low marſhy grounds, and bloſſoms in july and auguſt. This beautiful flower has a hollow cone in its center, which is ſurrounded with

with ſeveral upright chives, on the tops of which are placed ſmall creſcents or half-moons filled with *Farina*; when this is mature, the chives, by turns, bend themſelves like a bow, and diſcharge the farina or prolific duſt from theſe creſcents into the apex or point of the hollow cone, and then return to their former ſtate: I have ſeen with ſurpriſe, ſeveral of them, as if endowed with animal inſtinct, in the very act of diſcharging their *farina*.

THE *Tænia lata* has a mouth, which leads to a kind of longitudinal vein or *ſinus* continued through its whole length, and capable of being injected; but ſeems to have no lateral pores or *ſpiracula*, like the *Tænia cucurbitina*, through which, the laſt, probably, derives its nouriſhment. This worm has been erroneouſly ſuppoſed to conſiſt of a ſeries of ſmaller worms, linked together like a chain; which miſtake was probably owing to its power of *reproduction* and peculiarity of ſtructure, its ſeveral rings or links reſembling ſo many gourd-ſeeds, for which reaſon, it has alſo been named *Gourd-worm*.

IN

IN general only one *Tænia lata* has been found in the body; it has therefore been called the ſolitary worm; but this is alſo a miſtake, for, ſometimes there have been more: Indeed, conſidering its monſtrous and incredible length of 165 feet, as mentioned in the Academy of Sciences at Paris, A. 1709; and of another in the Stockholm Memoirs, *eighty feet long*, ſo as to extend through the whole inteſtinal canal from the ſtomach to the anus; there ſcarcely appears room for any other.

SINCE many of the complaints ariſing from Worms are frequently miſtaken for thoſe which belong to other diſeaſes; we ſhall endeavour particularly to point out their real difference. For inſtance, ſymptoms imputed to worms are alſo common to children cutting teeth; and in thoſe of a more adult age, the *ſwelling of the upper lip and noſtrils*, which has lately been pointed out as an infallible ſign, is *peculiar to Scrophula*; as alſo that pain and tumefaction of the belly ſuppoſed to proceed

ceed from worms, being occaſioned by a *ſcrophulous affection of the meſenteric glands.*

ITCHING *of the noſe, and grinding of the teeth*, are *almoſt certain ſigns of worms*; particularly the firſt; the cauſe of which has not generally been aſſigned: It ſeems to ariſe from nervous ſympathy, or conſent of parts between the fine, *nervous lining* of the noſe, and that of the inteſtinal canal, which are ſimilar in ſtructure; the laſt, being a continuation of the former.

THOSE ſymptoms, however, have alſo been found to occur in the *Hydrocephalus* or water in the head; but there is one ſign uſually attending this laſt diſeaſe, which will diſtinguiſh it from the other two, viz. a partial blindneſs and remarkable *dilatation of the pupil of the Eye*; as I had occaſion to remark in the caſe of maſter T—ke of Weſtminſter, whoſe diſorder was thought to proceed from worms, and whom I attended, ſeveral years ago, with Dr. Wilbraham then phyſician to the Weſtminſter Infirmary.

When

When the body was opened, a conſiderable quantity of *water was found in the head and abdomen*, without any appearance of worms.

In caſes of *tape-worm*, we have been informed that the patient is affected with a painful ſenſation about the Stomach, which ceaſes when he has taken food; but this is a very uncertain ſign, and may be miſtaken for one exactly ſimilar; which, in ſpeaking of the affections of the ſtomach, at page 7 of this Eſſay, I have remarked, is relieved in the ſame manner, viz. by repleniſhing the ſtomach with food.

As therefore many of the general ſigns of thoſe pernicious reptiles are inconcluſive, and, *independent of their being voided*, extremely fallacious; the beſt practical method will be, accurately to mark down the preciſe ſymptoms which occur in thoſe patients, where, for the above demonſtrable reaſon, we are certain of their exiſtence; and alſo, then to notice the different *ſigns which are*

peculiar

peculiar to each verminous ſpecies thus expelled from the body.

RESPECTING the medicines to be adminiſtered for the expulſion of worms; it would be a great benefit to the community, if ſuch of them only were pointed out, whoſe efficacy had been well eſtabliſhed and *aſcertained by practical experience*; the better to withdraw the attention of the common people from unavailing trifles. Of this efficacious kind is the celebrated Remedy of *Madame Nouffer* uſed in France, after the death of her huſband, for the ſpace of twenty years, and with ſuch extraordinary ſucceſs, that it was atteſted by the reſpectable names of Macquer, de la Motte, de Juſſieu, Carburi, Cadet, and Laſſone, and publiſhed by order of the French King; which I have therefore ſet down as follows; but it ſhould be remarked, that this medicine is chiefly to be conſidered as a ſpecific in caſes of the *Tape-worm* or *Tænia lata*, though it may alſo be found beneficial in thoſe of the *Tænia cucurbitina or Gourd-worm* which is more difficult to expel, and

and equally pernicious with the former; but is a *distinct species*, which ought not to be confounded with the other.

Madam NOUFFER's Worm-Powder.

TAKE two or three drams of the dried root of *male fern* gathered in autumn and reduced to fine powder, in four or six ounces of soft water: Let it be given in bed, early in the morning, and two hours after, the following bolus is to be directed: Take of mercurius dulcis and dry resin of scammony, ten grains, each; of gamboge, four grains; reduce them into fine powder, and make a bolus, with a sufficient quantity of any conserve. This bolus ought never to be directed without great caution, and proper advice, being composed of very powerful ingredients, and in a greater proportion than what is conformable to the present medical practice.

THOSE who are desirous of farther information on this subject may find it in *Dr. Foart Simmons's* account of the *Tænia*, where the

two ſpecies of this Worm are accurately deſcribed, and elegantly delineated in two Copper-plates. From the Doctor's tranſlation of Madam Nouffer's method of adminiſtering her Specific for the *Tænia*, and the regimen to be followed during the cure; I have taken the liberty to tranſcribe the following particulars.

"THE day before the patient intends to take this remedy, he muſt avoid all aliment, after dinner, till about ſeven o'clock in the evening, when he is to drink about a pint or more of weak ſoup, ſoon after which he may eat a biſcuit and take a glaſs of white wine: If the patient is coſtive; a clyſter with a decoction of mallow-leaves, ſalt, and ſweet oil ſhould be adminiſtered: Early the next morning as already mentioned, the *Fern powder* is to be taken; if it exites nauſea, and is rejected by the ſtomach, it will be neceſſary, ſoon as the ſickneſs is gone off, to take a ſecond doſe. About two hours after, he muſt riſe from bed and take the *purging bolus* already ſpecified, waſhing

ing it down with a ſmall quantity of any fluid. When it begins to operate, he may occaſionally take a tea-cup full of gruel, or other fluid till the worm is expelled. Then and not before, Madam Nouffer gives him broth or ſoup, and he is directed to dine as uſual, taking care to eat, ſparingly, of ſuch things as are eaſy of digeſtion.

WHEN the bolus has not been retained in the ſtomach or is not ſufficiently purgative; four hours after it, the patient ought to take one ounce of Epſom ſalts diſolved in a ſufficient quantity of water. It is uſual for thoſe who have kept down both the ſpecific and purging doſe, to diſcharge the worm before dinner; and *ſometimes it is brought away by the Fern powder alone*, before the patient has taken the purging bolus. Such as have vomited the greateſt part of both the powder and bolus, muſt, that night, repeat the whole proceſs of the ſoup and clyſter, &c. And the next morning another doſe of the ſpecific powder, omitting the purging bolus, and inſtead of it, taking the

ſame doſe of purging ſalts, as before." This, with little variation, is the ſubſtance of Madam Nouffer's effectual method of deſtroying the *Tape-worm*.

SOME danger having been juſtly apprehended from the purgative bolus directed to be given after the *Fern powder*, eſpecially the repetition of it, in weak conſtitutions; *Dr. Blackburne*, in a letter to *Dr. Simmons*, recommends Ol. Ricini or caſtor oil diſſolved in the yolk of an egg, as a ſubſtitute for the bolus; from which he had experienced very deſirable effects, as it operated without gripes or fever, and produced copious offenſive ſtools with a few joints of the *Tænia*.

OIL will inſtantly kill bugs and inſects; and this it ſeems to do by ſtopping their pores; and as many pores or *ſpiracula* have been diſcovered in the *Tænia cucurbitina* whoſe rings are eaſily ſeparated from each other, by ſtrong purgatives; *Caſtor Oil*, after the rough, draſtic bolus, will be extremely proper for two reaſons; it

it will not only be ſoft and balmy to the tender excoriated bowels, but by its purgative quality will carry off fragments of the worm thus deadened and detached from the inteſtines, and by *cloſing its pores*, eſpecially, when given *undiſſolved*, will probably have the ſame mortal effects upon ſuch portions of it, as might *regenerate* if left behind, as it is known to have had upon bugs and inſects.

THINGS deſtructive to one ſpecies of animal are not ſo to another; hence it may be preſumed, that there are certain medicinal ſubſtances *ſpecifically deſtructive to worms*, like the *Fern powder* to the tape-worm; by which, we find it was ſometimes expelled before the draſtic bolus had been given. The garden-ſnail or ſlug will feed, and fatten upon laurel-leaves which will kill cattle; and the *Cantharis* or Spaniſh fly, though a powerful cauſtic, is devoured by an inſect void of acrimony and which applied to the ſkin has no corroding effect; a ſingular inſtance of the wonderful

 aſſimilating

aſſimilating power of ſome animal bodies of converting others into their own nature.

FOR the deſtruction of the tape-worm, *Dr. Mead*, after many years experience, recommends *filings of tin and red coral*, of each, equal parts reduced to fine powder; of which, one dram mixed with ſyrup, or conſerve, may be taken upon an empty ſtomach, twice a day.

SALT *and Water* is a popular remedy againſt worms, particularly what is called *Bittern*, a nauſeous, bitter liquor drained off in purifying common ſalt. I was informed of a remarkable inſtance of its efficacy at Nortwich in Cheſhire ſome years ago. A labouring man had long been tortured with ſuch excruciating pains in his Stomach and Bowels, that he rolled upon the ground like one diſtracted; having tried almoſt every thing in vain, and deſpairing of a cure, he was adviſed by one of the common people to drink *Bittern*, which he accordingly did to ſuch exceſs, that after enduring intolerable ſickneſs and pain, inſomuch that thoſe about

about him thought he had killed himſelf; he was ſeized with enormous vomiting and purging by which he voided a *tape-worm* of incredible length, and was ſoon relieved from his miſery, by obtaining a perfect cure.

A SIMILAR caſe is mentioned by *Dr. Heberden*, in the firſt volume of the London medical tranſactions, where, the patient voided a large quantity of *Aſcarides*, and other worms reſembling *Botts* in horſes, by drinking two quarts of water, with two pounds of common ſalt; from a repetition of which, the third morning, he was entirely reſtored to health.

THE great baſtard, *black hellebore or bear's foot, and Indian pink, cabbage tree bark, and cowhage* are all powerfully deſtructive to worms; the three laſt of which not having been long introduced into practice, or univerſally known, it will be more neceſſary here to ſpecify their doſe and manner of exhibition.

SPIGELIA *Marylandica* or indian pink root was discovered by the *Indians* to the Europeans as a powerful vermifuge, and grows spontaneously in marshy grounds in several parts of South Carolina. It was first mentioned to me, as an efficacious anthelmintic, by Mr. Carne, a very intelligent man, who resided many years as a druggist at Charles-Town: He favoured me with a specimen of the plant and manner of its exhibition, which, coming nearer that of giving it by the native Indians, I here subjoin.

TAKE of the dried root and leaves of the Indian pink; reduce them into fine powder, and to children, from two, to eight years old, give for one dose, in mint-tea or sugared milk, from ten to twenty grains, upon an empty stomach, for six or seven mornings successively.

FOR infants, and those of delicate constitutions, an infusion of the plant, in the proportion of half an ounce, to one pint of boiling water, may be directed sweetened with sugar, which

which is then pleaſant as common tea; of this, one table-ſpoon full, to three or four, may be given night and morning.

ADMINISTER to adults, in powder, from one ſcruple to half a dram, twice, or in ſtrong conſtitutions even thrice a day: It gently opens the bowels. Mr. Carne informed me he had frequently thus directed it with good ſucceſs, but that it ſometimes occaſioned giddineſs with dimneſs of ſight which was ſoon removed by ſpirit of lavendar or a ſmall quantity of any volatile ſpirit: This effect however I. have never yet preceived in the leaſt degree; perhaps it might be owing to the plant uſed in its recent ſtate, which like freſh-gathered tea might then have a narcotic quality afterwards diſſipated by keeping.

To inſure the ſucceſs of this Medicine, it will be neceſſary, by intervals, to continue its uſe for a fortnight or longer, eſpecially when the infuſion is adminiſtered: It will alſo be proper to direct a ſmart purgative with jalap or

or ſena, but if the bowels are tender, a ſpoon-full or two of *Caſtor oil* will be more proper.

A STRONG decoction of the *Cabbage-tree bark* obtained from the weſt Indies has there been experimentally found extremely efficacious in the deſtruction of worms: It may be made by adding a quart of ſoft water to one ounce of groſs powder of its bark, which being boiled very ſlowly to the conſumption of half; the patient, if an adult, may take a large tea-cup full or more, night and morning, upon an empty ſtomach, for three or four days' ſucceſſively; interpoſing a ſmart purgative at diſcretion, more effectually to expel worms thus deadened by the preceding medicine. To children of four or five years old, a wine-glaſs full of the decoction may be given ſweetened with ſugar, for two or three mornings, varying the doſe, according to the age and ſtrength of the patient.

FOR ſome time paſt, *Stizolobium or Cowhage* has been introduced into practice, in the cure of

of diseases from worms; and from many trials made with it here, as well as by the Planters in the west Indies among their negroes, has been found a medicine of very extraordinary efficacy, as also appears by a tract published a few years ago by Mr. Chamberlane.

THE pods of this west India plant called Cowhage are thickly beset on their outside with the *Siliqua hirsuta* of Linnæus, appearing, when viewed by the microscope, like so many *spiculæ* or small darts exquisitely sharp and piercing. In my *Lectures* on diseases of children, I observed that those spiculæ act on worms, *merely as a mechanical poison,* and destroy them by pricking and wounding them to death; in the same manner as hair cut extremely fine and given with the like intention; and which, in many instances, it has been known to effect, though in a less degree. That it has no specific virtue is certain; because both a tincture, and decoction of Cowhage have been tried, and found perfectly inert

inert and harmlefs, having produced no fenfible effect fimilar to that of the fpiculæ of Cowhage adminiftered in fubftance.

THE moft fimple and leaft troublefome method of giving this medicine will be, to dip the ripe pods into melaffes and then fcrape off the fpiculæ with a blunt knife, taking care they are not fcattered upon the hands or body, as they would irritate the fkin and occafion intolerable and inceffant itching. A table-fpoon full of thefe *fpiculæ* thus obtained being mixed with a tea-cup full or more of melaffes, may be given in the quantity of a tea-fpoon full or two, to children fafting, for three or four mornings, fucceffively; and to adults, a table-fpoon full or more, for the fame fpace of time; after which, a purgative with *undiffolved caftor oil*, may be taken the morning following.

DR. BANCROFT, in his natural hiftory of Guiana fpeaks highly of the efficacy and fafety of Cowhage, but remarks that it was moft fuccefsfully given in cafes of the *Teres* or round

round worm; but later experience proves that it is equally powerful in expelling every ſpecies of worm, and without the leaſt injury to the Stomach and Bowels: However, where they are tender and *ſtripped of their mucus* or diſpoſed to inflammation; common prudence would teach us to avoid its uſe.

THERE is one ſpecies of *morbid affection incident to the Stomach and Bowels*, which, as far as I know, has not been mentioned by any author; namely, *a want of fat in the omentum*, which frequently happens in lean, emaciated ſubjects.

THE *Omentum* is a double membrane interlarded with fat, between the lamina or folds of which, the blood-veſſels are numerouſly diſtributed: It is connected with the ſtomach above, and looſely over-ſpreads the inteſtines below, as a fine, oily covering which not only lubricates and anoints their ſurface but *defends them from cold, the better to preſerve the fluidity and motion of the circulating blood*, as well as to allow their convolutions to move and glide over each other, *without attrition or pain.*

THE

THE *coldness of the Stomach, its want of digestion,* and disorders of the Bowels which follow the extirpation of the *Omentum,* in quadrupedes, all evidently point out its use in the human subject; and shew, that it was intended to warm and cherish the [illegible] to promote the circulation of blood through their vessels, and to support their several functions; consequently, when it becomes diseased, or wasted, and insufficient to answer those purposes, the *viscera will be affected with the preceding Diseases.*

IF we reason from the structure and use of the parts, it will be obvious, that such maladies will be most likely to admit of relief or cure, by supplying the natural defects of the Omentum, with an artificial substitute; namely, a soft, warm covering of fur, or fine wool included in double flannel, over the whole abdomen; and the application of volatile liniment to the stomach and bowels; which, with the frequent use of a flesh-brush, will warm and invigorate the languid Viscera, and assist their several functions.

functions. For the efficacy of ſuch remedies, *however ſimple*, we may appeal to the feelings of thoſe who have made uſe of them, and ſenſibly experienced their good effects.

Besides the various cauſes already aſſigned for the diſeaſes under conſideration, there are ſome others of the accidental or acceſſory kind; among which may be named, the ſuppreſſion of long-accuſtomed evacuations, as the bleeding piles, or menſes; eruptions repelled from the ſurface of the body, ſtoppage of perſpiration from the feet, or old ulcers which diſcharged a ſanious matter, too ſuddenly cloſed. Alſo the retenſion of *extraneous bodies* incautiouſly ſwallowed, as fiſh-bones, plumb-ſtones or the like, which being lodged in the flexures of the inteſtines occaſion the moſt excruciating colic *pains*.

SOMETIMES, theſe bodies have been found enlarged to an enormous ſize by making a center or *nucleus* of ſtony incruſtation formed around them, from the aliment paſſing through

through the inteſtinal canal. I have one of them in my poſſeſſion which belonged to the late Dr. Nicols, much larger than a ſwan's egg, which was taken out of the colon of a horſe, and occaſioned the death of that animal.

THE ſtomach and general habit of body are alſo often injured by *bad water* and *unwhole-ſome air*, eſpecially when the laſt is vitiated by its vicinity to lime, or brick kilns, or the metallic fumes of ſmelting-mills, and iron-founderies: The effluvia of freſh paint, or new lime-walls, candle-manufactories, or burying-grounds, all deſtroy the natural purity of air.

MARSH vapour, or a warm, moiſt atmoſphere overcharged with *fixed air* proceeding from dung-hills, tan-yards, fermenting liquors, or green vegetables, as *new hay*, &c. which not only ferment but take fire, are alſo pernicious; for, they contaminate the atmoſphere, and by deſtroying its elaſtic, vivyfying principle, render it highly noxious to animal life.

THE

THE powerful odor of ſome *Perfumes*, and their effect on the organs of ſmelling, inaſmuch as the head and ſtomach ſympathize with each other, frequently occaſion *ſickneſs at ſtomach and* [illegible] ...gments, and beautifying lotions applied to the ſkin, when of a pernicious nature, and abſorbed, ſo as to enter the blood, have all their ſhare, eſpecially in great cities, where they are commonly uſed, of adding to diſeaſes of the Stomach and Bowels.

As moſt of the above cauſes, by being *pointed out, and foreſeen, may be avoided*; it is evident that, in ſuch caſes, prudent caution will be more neceſſary than Medicines.

IT can, therefore, only be proper to ſignify, that whenever there is *local irritation of the ſtomach, or inteſtinal canal*, from any of the preceding cauſes, attended with *Coſtiveneſs*; the exhibition of *Caſtor oil*, in the quantity of a ſpoonful or more, by intervals, will always be attended with beneficial effects and is preferable to every other laxative.

SHOULD the Conſtitution ſuffer from an atmoſphere too much loaded with phlogiſton, or *fixed air* which deſtroy its elaſticity, and have *often proved fatal in the fumes of charcoal, and metallic ſubſtances in confined places; the dang[illegible] great meaſure, be prevented by the ſteam of hot water* frequently agitated to increaſe its evaporation, by which, the fixed air and mephitic principle will be abſorbed as faſt as it is diſcharged, and conſequently rendered harmleſs.

THE confined air of aſſembly-rooms, bedchambers, and other places which become unwholeſome by animal perſpiration, and the ſmoke of burning candles, may thus be made more pure and fit for reſpiration; and by the addition of *Vinegar* to boiling water, the ſteam will be rendered *antiſeptic*, and not only abſorb the contaminated air, but alſo powerfully *reſiſt putrefaction.*

THIS Remedy, if not overlooked or neglected, *becauſe it is ſimple*, and eaſily applied, like many others of the valuable kind, may be of the greateſt

greateſt benefit to Artificers, and Mechanics who are affected with violent head-aches, ſtupor, and ſickneſs at ſtomach, with pain in the bowels, by ſitting near *charcoal fires* or the *fumes of melted* [illegible] in confined air; or thoſe expoſed to the effluvia of freſh-painted, or lime-plaſtered rooms, where they are conſtantly obliged to work. *It would preſerve many from ill health, and others from a lingering death.*

I WAS, lately, deſired to viſit a tradeſman in Long-acre, who, from the poiſonous fumes of melted lead, was ſeized with the moſt excruciating *colic pains* — a diſeaſe in the north of England called *Belland*, attended with coſtiveneſs and contraction of his bowels, inſomuch, that his friends expected his death every hour. I directed blood to be drawn from his arm, and clyſters of tripe-water with Caſtor oil to be injected: Internally he took liberally a mixture with mucilage of Gum arabic, Caſtor oil, and Syrup of white poppies, which afforded him great relief; but in the evening of the ſame day, his pains returned with ſo much violence that from his moaning and outcry,

there was reaſon to apprehend a mortification of his bowels: I then directed his belly to be fomented, and bathed with warm oil; a double flannel was applied round his body, and his feet were put into warm wa[illegible] mixture, and clyſter, with the liberal addition of an Opiate were repeated, and in a few days he perfectly recovered.

IF *Eruptions*, which nature for her ſecurity had thrown out on the ſurface of the body, have been repelled and driven back upon the *Bowels*, attended with ſickneſs and pain; the immediate uſe of a warm bath, and afterwards thirty or forty drops of *antimonial tincture* in mint-tea, or an infuſion of elder-flowers, at bed-time, will be proper to promote a free perſpiration; after which it will be neceſſary to open the bowels by a ſpoonful or two of *Caſtor oil.*

THOSE of a weakly habit of body, who lead an inactive life, are frequently ſubject to ſevere fits of *Colic* after eating, agitation of mind, or ſudden changes of weather; which indicate bad digeſtion,

gestion, great nervous sensibility, and a weak, infirm state of the *Viscera*.

SOLID food, an emetic, or purgative medicine, after anger, have been found dangerous, and act on the body with the violence of poisons. After great disturbance of mind, I have observed, that the Stomach and Bowels are affected with pain, and endeavour to discharge their contents by *vomiting*, or a *diarrhœa*, but if neither of these evacuations happen; sickness, a spasmodic affection of the biliary ducts, yellowness of the skin, a fever, and sometimes convulsions have been the consequence.

IN this irritable state of the Viscera, they are unable to bear any additional stimulus, and therefore, instead of rhubarb and the like, commonly administered, the proper remedies to give relief, are bleeding, opiates, and the warm bath, with anodyne clysters; the first will abate the circulation, the last will relax the solids, soothe the nerves, and dissolve the spasm.

THOSE faculties of the Stomach, and Bowels, called *vomiting* and *purging*, may not improperly be mentioned here. *Vomiting* ariſes from an inverted, convulſive motion of the ſtomach, aſſiſted by the ſudden contraction of the diaphragm and abdominal muſcles; by which its contents are rejected and thrown up, inſtead of paſſing downwards. *Purging* is produced by ſome particular irritation of the bowels, which preternaturally increaſes their expulſive motion downwards. Nauſea and vomiting only differ in degree, for both imply a diſagreeable impreſſion made upon the ſtomach.

THOSE who are ſubject to colic pains, or tedious habitual complaints of the bowels, by taking cold in ſevere weather, or ſuch like cauſes; will find very great relief, by wearing fine flannel next the ſkin and keeping their feet extremely warm: If the pain is violent, an emollient clyſter, prepared with elder-flowers and three or four white poppy-heads, will afford eaſe; bottles filled with hot water, and wrapped in double flannels may be applied to the belly and ſoles of the feet, and an infuſion

of

of rosemary may then be drank warm, in bed, to promote a gentle perspiration.

INSTEAD of the frequent use of spirituous liquors, or cordi[illegible]cines which only afford a *momentary relief*, and have been the occasion of fatal consequences, the patient should be careful not to err in the quantity or quality of his food: He should keep his bowels laxative, abstain from all fermented liquors, and confine himself to pure distilled water for common drink; by which means, many have been perfectly freed from obstinate and painful complaints of the bowels.

AFTER such disorders are abated; half a table-spoonful of tincture of peruvian bark with cardamom seeds, in a large glass full of Spa, or pyrmont water taken twice a day; with moderate exercise, in dry, cool air, will bid fair to prevent a relapse.

I HAVE here purposely omitted the mention of *bilious, nephritic, and hysteric colic*, as distinct diseases; since, in general, they can only, with propriety, be considered as so many morbid symp-

toms, of the *acute kind*, which did not, therefore, ſo properly come under conſideration.

WEAK, ſedentary people have generally a ſlender appetite, and bad digeſtion, attended with flatulence, hectic heats, and nervous affections; and on the contrary, when bodily ſtrength is good, ſo are appetite and digeſtion: The circulation of blood is then briſk and free, the ſpirits lively, and all the natural diſcharges being regular, no groſs humours or unſound juices are retained to injure the conſtitution.

THESE things premiſed, it is evident, that ſuch as mean to remain free from *chronic diſeaſes*, ſhould avoid, as much as poſſible, the general cauſes which deſtroy appetite, and weaken the digeſtive power of the ſtomach where their firſt foundation is laid. Whatever remedies have been found moſt effectual in repairing the conſtitution and increaſing bodily ſtrength, ſuch will always moſt powerfully and permanently aſſiſt digeſtion; conſequently *cool, dry, pure air, and moderate exercise, are the beſt of all ſtomachics:* They will increaſe

increaſe animal heat, and promote that circulation of the blood which regulates and ſupports the ſeveral ſecretions and excretions, upon which the health and well-being of the body entirely depend.

THE great difference experienced by *Invalids*, in their ſtrength, ſpirits, and appetite, when they uſe *exerciſe* in a bracing, froſty air; compared with that ſickly languor which they feel in warm, damp weather, when they indolently ſit ſtill in their chambers, and breathe a confined, inelaſtic air, will ſufficiently prove the truth of this aſſertion; for, although *Peruvian bark*, *ſteel*, *bitters*, and the *cold bath*, are all excellent Remedies when properly directed; their effects will be greatly increaſed, and their efficacy rendered much more permanent, by the aſſiſtance of thoſe natural benefits.

SECT.

SECT. VI.

Of the Hæmorrhoids or Piles; their Nature, Treatment an

THE alimentary tube extended from the Stomach to the anus, at its extremity, forms that part, which, from its ſtreight direction is named *rectum*; and which is the ſeat of the *Hæmorrhoides* or Piles, ſo called, from the throbbing and pungent, local pain within the verge of the anus, occaſioned by that diſeaſe.

MORE clearly to underſtand the nature of this painful malady, it is neceſſary to obſerve, that in all parts of the animal body, the blood ſent from the *Heart* by the *arteries*, for its nouriſhment, is again returned to it by the *veins*; and, that in the firſt of thoſe vaſcular ſyſtems, it is impelled by the force of the heart which communicates to it that motion which is called the *pulſe*; but in the veins which lie too remote from its influence, the circulation is more ſlow, and the blood, from want of impulſe, returns through them

them with confiderable difficulty; although it is greatly affifted by the action and contractive power of the feveral contiguous mufcles.

THIS effect is exemplified, by obferving with what velocity the blood may be forced through a fmall orifice in the arm after venefection, by grafping a lancet-cafe or other folid body, which puts the mufcles in a contracted ftate.

THE *rectum* has no contiguous mufcles lying in its own direction, to produce fuch effect, but is only furrounded with cellular membrane, filled with fat, and is fupplied with hæmorrhoidal veins and arteries, which run upwards upon its furface; confequently, when the pofition of the body is erect, *the blood returning to the heart by the veins muft afcend againft its own gravity*; and this will be effected with greater difficulty, from the want of that mufcular, compreffive force common to other parts of the body.

THESE circumftances being previoufly attended to and clearly underftood; it may then be eafily

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feen, why any addition to this *natural obftacle* in the blood returning by the veins, may be fo increafed from accidental caufes as to bring on the Piles; and confequently, why thofe of an indolent, inactive life, who indulge in full diet, [illegible] little exercife are moft fubject to that diforder; and alfo why the immoderate ufe of fpirituous liquors, or high-feafoned aliment, a coftive habit, uterine geftation, fleeping in warm chambers, on beds of down, and all fuch acceffary caufes as heat the blood and comprefs its returning veffels, often produce that excruciating malady.

BESIDES the more immediate caufes already affigned for this frequent difeafe, there are others of a more remote kind; namely, external violence, fuch as that of extreme agitation on horfe-back, ftrong draftic purgatives, taking cold, or violent anger and anxiety of mind. The frequent ufe of *Bitters*, and *Aromatics*, by hardening and conftringing the fibres of the inteftines, robbing them of moifture, and producing *coftivenefs*, and fever, have alfo been obferved to occafion Piles.

THIS

THIS diſorder of the alimentary tube is diſtinguiſhed into *internal* and *extornal Piles*: The firſt, are not attended with a rupture of veſſels or diſcharge of blood; but in the laſt, the veins are often ſo overcharged, as to puſh outwards in form of irregular prominences which burſt and pour out their contents, being then called *bleeding Piles*.

THE internal and external hæmorrhoidal veſſels not only communicate with each other, but with thoſe of the *Meſentery*, and *abdominal Viſcera*, in general.

HERE it is proper to remark, that blood is frequently diſcharged from different parts of the body, at different periods of life, according to the peculiar habit which then prevails: In youth, it often eſcapes from the *noſe*; at maturity, it proceeds from the *ſtomach* or *lungs*; but in a more advanced age, or the autumnal ſeaſon of life, when *venous plethora* prevails, or in other words, when the veins are overcharged with blood, it frequently paſſes off by *bleeding piles*, either to compenſate for the loſs of ſome other neceſſary diſcharge, or to

relieve

relieve the conſtitution of redundant blood, accumulated in the abdominal viſcera.

IN young ſubjects, when the diſcharge is profuſe, the blood generally [illegible] from the arteries; but, at a more advanced age, eſpecially in thoſe of a full habit, and ſedentary life, where *venous plethora* prevails, it is commonly poured out by the veins.

IT has been aſſerted by *Tiſſot*, that *Hæmorrhoids* are always the effect of ill health: This without doubt is ſometimes the caſe; ſince we know that the ſource of this malady may be remote from the part locally affected. But, on the contrary, many inſtances may be brought to ſhew, that bleeding Piles frequently ariſe from *ſimple plenitude;* and at other times may be conſidered as a *critical diſcharge*, which prevents ſome diſeaſes and relieves others.

A *ſchirrous liver or obſtruction of the viſcera* may therefore be the proximate cauſe of Piles; for if the blood, returned from the abdominal contents, cannot

not be freely tranſmitted through the liver with which they freely communicate, it muſt then be accumulated in the inteſtines and will overload and diſtend their veſſels, even to that of burſting, as [illegible] a f[illegible]ood from the Piles; and which, under ſuch circumſtances, is merely a ſymptom. To effect a cure, our attention ſhould therefore be chiefly turned to thoſe morbid affections of the Viſcera, as the original cauſe of the diſeaſe.

WHEN bleeding Piles ſucceed *diſeaſes of the liver*, intemperance, violent paſſions ofthe mind, obſtruction of menſes, or an habitual ſpitting of blood; the diſcharge ought only to be moderated, but not totally ſuppreſſed.

I HAVE ſeen, ſeveral times, the good effects of this diſcharge in ſuch caſes; and, on the contrary, inſtances, where from its over-haſty ſtoppage, great anxiety, with palpitation of the heart, and internal fluttering have been brought on; attended with dejection of ſpirits, and a train of diſtreſſing diſorders, which could not be ſo effec-

tually

tually relieved by any method as that which procured a return of the diſcharge.

In complaints of the *head* and *breaſt*, attended with low ſpirits and melancholy; its ſalutary effects have been obſerved; and in diſorders of the *abdominal Viſcera* it has been found more immediately ſerviceable, in conſequence of a communication of veſſels between thoſe parts, and that from which the offending blood was evacuated.

If a ſudden ſuppreſſion of the hæmorrhoidal flux is followed by fever, difficulty of breathing, or other oppreſſive ſymptoms; leeches ſhould be applied to the verge of the anus, and clyſters prepared with an infuſion of elder-flowers and ſoap may be adminiſtered; the patient may alſo uſe a warm bath or ſit over the vapour of warm water; a tea ſpoonful of the tincture of *black hellebore*, in a ſmall quantity of any fluid, may then be given twice a-day.

But in cold, phlegmatic habits, nothing has been found more efficacious in recalling bleeding piles, than

than ſmall pills of purified *aloes* and ſoap, one of which may be taken night and morning. In ſuch caſes, moderate exerciſe on horſeback has been found beneficial; but all violent motion is improper, and to be avoided.

So powerful is the effect of aloes in producing piles, that we are told, the *Jews*, *Venetians* and eaſtern people in general, from the frequent uſe of this drug, are of all others moſt ſubject to that diſorder.

SHOULD theſe methods of recalling the *habitual, bleeding Piles* prove ineffectual, and their ſuppreſſion be ſucceeded by giddineſs of the head, or ſymptoms of Apoplexy; it will be neceſſary immediately to draw blood from the arm, or to direct cupping with ſcarification in the *nape* of the neck; the body ſhould be kept cool and laxative, and the excretions of perſpiration, and urine gently *promoted*; the firſt intention may be effected by the antimonial tincture given in any fluid; the laſt by plentiful dilution with nitre; and although *Aloes*, as already remarked, is a powerful medi-

cine, it ſhould always be avoided where pain, fever, or ſymptoms of plenitude are preſent; leſt, by its heating quality, it ſhould aggravate the diſeaſe, and bring on an abſceſs or *fiſtula* in the affected part.

WHENEVER the hæmorrhoidal flux is profuſe; the danger is not ſo much to be eſtimated by the quantity of blood, as the attendant ſymptoms; therefore, whether it be large or ſmall, in quantity, if the patient is relieved from oppreſſion of ſpirits, hypochondriacal affections, or diſorders of the Viſcera, to which he had been ſubject; it ought not then to be ſtopped: On the contrary, when he becomes faint, and the pulſe loſes its firmneſs, with evident loſs of ſtrength, it ſhould then be totally ſuppreſſed without delay.

WHEN the diſcharge is profuſe, and ſupervenes a putrid diſſolution of the blood, as in *ſcorbutic caſes*, with a morbid affection of the *Liver* or *Spleen*, and with great languor, flatulence or diſtenſion of the ſtomach and bowels; it denotes immediate danger; for, under ſuch circumſtances, and attended by ſuch ſymptoms, it has often proved fatal.

THERE

THERE is a manifeſt ſympathy between the menſes and bleeding piles: When the firſt are obſtructed, I have obſerved that the laſt ſometimes became periodical, and ſupplied their defect. Such diſcharge, therefore, can never be ſtopped without danger to the conſtitution; neither ſhould it be ſuddenly reſtrained, when it happens about the ceſſation of the menſes, for then it ſeems to be an expedient of nature to prevent the inconvenience which might ariſe from the want of that long-accuſtomed evacuation.

BLOOD which eſcapes by the open or bleeding piles, may be diſtinguiſhed from that voided in *bloody flux*, by the following ſigns. In the firſt, the pain is local, chiefly confined to the *anus*, and the blood comes away alone, or before the ſtools; but in the laſt, the pain is more violent and extended over the belly; the blood is diſcharged with fœces, or is afterwards voided by the efforts of ſtraining.

WHEN the *Piles* are attended with exceſſive pain, fever and other violent ſymptoms, the in-

flammation is often ſo great as to produce a collection of matter terminated by a *fiſtula in ano* or hollow ulcer of the part, which afterwards requires cutting; and, in bad habits of body, at an advanced period of life, is often incurable.

IN the *internal piles* attended with pain and fever; bleeding, laxatives, and ſpare, cooling diet of the vegetable kind are proper. The liberal uſe of ripe fruits is beneficial, alſo weak broths, with a large addition of cooling herbs, and *nitre* inſtead of common ſalt, which thus taken is palatable, and productive of good effects, by promoting perſpiration and urine, as well as by gently opening the bowels.

THE patient ſhould keep his body in a horizontal poſition as much as poſſible, by lying down on a bed or couch, and nothing will relieve him ſo much as being kept extremely cool: His food ſhould be light and eaſy of digeſtion, and imperial water with manna, for common drink will be proper.

WHEN

WHEN the pain is excruciating; *Leeches* may be applied to the affected part, and tempted to take hold by touching the surface with blood; but if they will not fix, blood may be safely discharged from the larger piles, with the point of a fine lancet, which generally procures ease. An opiate clyster, scarcely milk-warm, may then be administered in a small quantity, if the pain continues acute, and if the pipe is covered with a pigeon's gut inverted, it will glide up with much less pain to the patient: If it be injected too warm, or in a large quantity, it will defeat the purpose of an internal fomentation; instead of relieving it will give pain, and soon occasion its own expulsion.

WHEN the patient cannot submit to this method, he may be placed over the steam of warm water, proceeding from a strong decoction of white poppy-heads and elder-flowers, to which half a table spoonful of *liquid laudanum* has been added at the time of use.

NOTHING will give more instant ease in a painful fit of internal piles, than the applicalion of in-

tenſe cold to the ſurface of the body. A glaſs of cold ſpring water may be taken at the ſame time, and a ſoft ſpunge dipped in lime-water, or a very weak ſolution of Goulard's extract of lead may be applied to the affected part: But where ſuch pain is attended with much fever, inflammation, and internal throbbing denoting formation of matter; loſs of blood from the arm, or by leeches, from the verge of the anus, and emollient applications, rather than thoſe cold or reſtringent, are much more ſafe and proper.

THE affected part may be bathed with warm, new milk, and afterwards a cataplaſm with bread and milk, and a tea-ſpoonful or two of opiate tincture, will be proper; or one prepared with bread-crumb beaten into a pulp, with a ſtrong decoction of white poppy-heads and elder-flowers. Lenitive electuary, or that with Caſſia, which is much more pleaſant, ſhould then be taken in the quantity of a nutmeg every other morning, or oftener, ſo as to keep the body gently laxative.

SUCH temporary fits of the piles attended with acute pain, are often occaſioned by the retention

of

of wind or indurated fœces in the rectum, which being discharged with mucus, and a small quantity of blood; the patient generally finds ease; especially if he takes care to live temperate and keep himself cool, and laxative.

OINTMENTS are most proper after the pain and inflammation are abated: The unguentum saturninum, or a cerate of oil and white wax is most eligible, on account of its whiteness and want of smell; but such applications are not so efficacious as generally imagined, and the more simple they are, so much the better.

SHOULD the strength be apparently wasted by too profuse a discharge of blood, it may be restrained by keeping the body cool, and the use of vegetable acids; such as the juice of lemons, tincture of roses, or a decoction of *tamarinds* sweetened with manna. The affected part may be bathed twice or thrice a-day with a soft spunge dipt in a strong infusion of red rose-buds and pomegranate-peel with port wine, to which a small portion of alum may be added, and afterward gently bound on the part.

Seltzer water with milk will be proper for common drink; or what I have found preferable, in coftive habits, a *folution of the cryftals of Tartar, with a fixth or feventh part of Borax*, which will nor only foften the harfhnefs of the tartar, but will promote its more perfect folution in water, with which it otherwife difficultly unites. When directed in this manner, it makes a neutral folution, of the moft mild and efficacious kind; it will not only gently open the bowels, quench thirft, and abate feverifh heat; but will alfo act as a *powerful aperient in obftructions of the Vifcera*, and in dropfical cafes will promote the plentiful fecretion of urine: In fhort, thus adminiftered, it will produce much more falutary effects, than when given alone in the ufual manner, as I have had frequent occafion to obferve.

A tea-cup full of the ftrong infufion of peruvian bark with red rofe-leaves, and elixir of vitriol, as a mild aftringent, may then be taken twice a-day with great advantage; and this will be more neceffary, as an excefs of the difcharge, when long continued, has been obferved to bring on a bloated habit of body, fometimes followed by *Dropfy* or *Confumption*.

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THE extirpation of thoſe ſmall protuberances called Piles, by ligature, is the laſt remedy to be propoſed in obſtinate caſes, and has been found effectual when other means failed; but this ought never to be uſed without proper advice, and the aſſiſtance of a ſkilful ſurgeon.

I HAVE here purpoſely omitted the mention of *ſulphur*, as a medicine frequently adminiſtered for the piles; but from what I have repeatedly ſeen of its effects, I cannot think favourably of it; having twice obſerved a dangerous and profuſe hæmorrhage, occaſioned by its liberal uſe. It evidently increaſes the blood's motion, and heats the body, and therefore acts in a manner directly contrary to the intention of giving relief, like many other things more regarded from cuſtom than propriety. When it has been thought of benefit; I believe that was more owing to the lenitive electuary uſually joined with it, than to any power of its own. This opinion ſeems confirmed by the good effects of ſulphur in *chronic rheumatiſm* and other caſes of the ſame kind, proceeding from weak veſſels and a languid circulation;

circulation; where it ſeems to act by promoting a free diſtribution of the blood, and increaſing inſenſible perſpiration.

THOSE who have been ſubject to *Piles* and wiſh to prevent their return, ſhould keep the body laxative, and live temperately on light and ſimple food; they ſhould uſe gentle exerciſe, and drink pure water, avoiding ſpirituous, or fermented liquors, night-air, and as much as poſſible, anger or anxiety of mind.

A DUE attention to the preceding *Rules and Cautions*, would generally be the means not only of *preventing pain and inflammation, but the danger of an Abſceſs, often ending in a fiſtula in ano*; eſpecially in thoſe of advanced age, and a groſs, ſcorbutic habit of body, who live on full diet and uſe little exerciſe; as will more plainly appear in the next ſection, on *Diſeaſes of the Liver*, with which the *hæmorrhoids* are frequently complicated.

SECT.

SECT. VII.

Of morbid affections of the Liver, and Spleen; viz. Inflammation, Abscess, or Schirrhus; with their Treatment aud Cure. Also of bilious Diseases in general; and of Gall-stones or bilious Concretions, with their various Symptoms, and method of Cure.

THE following Observations are chiefly confined to *chronic Diseases of the Liver*, which are much more frequent, in this climate, than those of the *acute kind*.

DISEASES of the Liver are often the consequence of *Intemperance, and excessive heat, joined to moisture*; and therefore, are most common in the east Indies, and other hot climates, especially after the *Monsoons*, or rainy seasons. In this country, however, those of a bilious habit, who are addicted to the immoderate use of spirituous liquors, which may be justly named *hepatic poisons*, are likewise subject to diseases of this organ: Also, such as reside

reside in low, unhealthy situations, during the damp, autumnal seasons; more especially, if they are inactive and labour under anxiety of mind.

As a minute description of the Liver would not only be unnecessary, but imperfectly understood by the generality of Readers, it can only be requisite to afford a competent idea of its structure and use.

THE Liver appears to be the most complex Organ in the human system, being composed of a pulpy, tender substance, and a congeries of various vessels, of different orders; chiefly, *for the purpose of preparing Bile*, and transmitting it into the intestinal canal; although, by the antients, it was erroneously supposed the principal organs of sanguification.

IT may be considered as a large gland consisting of two lobes, the largest of which is situated on the right side, above the short ribs, immediately under the arch of the diaphragm, a part which divides

vides the breast from the belly; and its small lobe on the left, above the stomach, upon which a part of it lies in contact, and is extended.

THE Liver chiefly receives its blood by a large vein named *Vena Portarum*; and that its distribution may be better understood, it may be compared to a shrub or small tree, having its trunk in the center, its branches in the circumference of the Liver, and its root in the whole abdominal viscera; namely the *intestines*, *mesentary*, and *omentum*, &c. from all which it brings refluent blood, for the *secretion of bile*, the use of which has been already specified in the first section.

IT is here necessary to remark a certain peculiarity in the distribution of its blood-vessels; for, instead of receiving blood by an artery, that fluid is sent to the Liver by a vein, as already mentioned; so that the *order of circulation* is here inverted, for purposes agreeable to the intention of nature, but which, it is not necessary to enlarge upon, because it could not be useful to the Reader.

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NOTWITHSTANDING the ſeveral vaſcular ſyſtems of the Liver are manifeſtly diſtinct; we know by injections, they communicate with each other; and although they are ſo intricately diſpoſed as to render its functions ſomewhat obſcure; it is obvious that the bile is prepared and ſtrained off from the blood, by the extreme branches of the *Vena portarum*: From thence it is taken up by a ſecond order of veſſels named *pori bilarii* which by uniting and reuniting, form one duct diſcharging a part of it immediately into the inteſtinal canal; the reſt being conveyed into the gall-bladder, where, by ſtagnation, it becomes more thick, bitter and exalted in quality, than that flowing from the Liver.

THE *Gall-bladder*, in ſhape and ſize, reſembles a ſmall pear, and is placed on the right ſide, in the concave part of the great lobe of the liver: From it proceeds the *cyſtic duct* which joins the *hepatic duct* or trunk of the *pori bilarii* coming from the Liver: By the union of thoſe two ſmall canals, the *ductus cholidochus* is formed, which diſcharges bile into the inteſtines, as already mentioned.

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THE *hepatic bile* proceeding immediately from the Liver, flows conſtantly into that part of the inteſtinal canal called *duodenum*; but the *cyſtic bile* from the gall-bladder, is only diſcharged at certain times, by the irritation, or preſſure of a full ſtomach, when the bladder is moſt turgid with bile.

THE blood brought by the *Vena portarum* from the whole abdominal Viſcera, having thus parted with its bile, is taken up by a third order of veſſels which by uniting conſtitute one large trunk called *Vena cava* carrying it directly to the heart, the main inſtrument of life and circulation.

THE *hepatic artery* is another veſſel ſupplying the Liver with blood, which ſeems intended for nouriſhment only; its branches accompany thoſe of the *Vena portarum*, with which, and its own correſponding vein, it alſo communicates, in common with the other vaſcular ſyſtems of the Liver.

FROM this diſtribution of the *Vena portarum* through the ſubſtance of the Liver above, and the abdominal

abdominal viſcera below; it may more eaſily be comprehended why thoſe parts ſympathize with each other, and are alternately, or mutually affected by every cauſe which obſtructs the courſe of their blood, and hinders it from being freely tranſmitted through their ſeveral parts. Should the Liver, for inſtance, be affected with inflammation, abſceſs or ſchirrus; the *inteſtines*, *meſentery* and abdominal contents which ſupply it with blood, muſt become obſtructed, overcharged and diſtended; hence a ſenſe of weight, oppreſſion and indolent pain through the whole abdominal region. To this cauſe alſo the hæmorrhoids are frequently owing, varicoſe ſwellings in the veins of the legs; hypochondriac affections; and a bloated habit of body ending in *jaundice*, *dropſy*, or ſome other chronic diſeaſe.

THE moſt obvious and common cauſes of *ſuch obſtruction*, are external violence, and an unfavourable, bending poſition of the patient's body; from whence the ſeveral *vitals parts* remain in a ſtate of long, and violent compreſſion, by which the courſe of their blood is not only obſtructed, but their

vital

vital functions are impaired or destroyed; the pernicious consequences of which I have more circumstantially pointed out at page 156, in speaking of diseases peculiar to certain occupations.

WANT of sufficient exercise, and full diet may likewise be assigned as manifest causes of plenitude and obstruction; especially the immoderate use of such high-seasoned, tenacious *aliment* as cannot easily be subdued by the stomach, or assimilating powers of the body; and to this *cause of visceral congestion*, as well as the production of *Gall-stones*, none are more subject than those of a studious disposition, who lead an indolent, monastic life.

ON the other hand; should any of the abdominal viscera be affected by abscess, or exulceration from a *scorbutic*, *scrophulous*, or *cancerous cause*; their diseased humours being transferred to the Liver will not only contaminate its substance, and disorder its functions, but, like morbid leaven, will taint the mass of blood passing through it, from the viscera, and destroy the whole constitution.

FROM the ſlow and ſluggiſh motion of the blood through the Liver, and its being endowed with leſs ſenſibility, than is common to other parts of the body, eſpecially in its interior, pulpy ſubſtance; it is ſeldom ſubject to acute inflammation, except from powerful cauſes; but, for the ſame reaſon, it is often affected by chronic inflammation, and obſtruction ending in *Scirrhus*.

DISEASES of the Liver are moſt frequent in the autumnal ſeaſon, or near the vernal, and autumnal equinox when the weather is changeable, and exceſſive heat is ſucceeded by ſevere cold. The blood and juices are then rarefied and expanded, and as ſuddenly chilled and condenſed; by which, together with that violent contraction of the ſolids which muſt then neceſſarily happen, they will be locked up and impacted in their veſſels, ſo as frequently to occaſion a *Scirrhus* or preternatural induration, and enlargement of the Liver, or other glands.

THIS obſervation being verified by repeated experience, ſhould be a caution to thoſe who inadvertently expoſe themſelves to falling dews, or night-

night-air at thoſe ſeaſons; or who imprudently take large draughts of cold fluids, or iced water when the body is violently heated by exerciſe, or other cauſes.

In every inflammation of the Liver the ſymptoms are more or leſs acute according to the degree of ſenſibility in the part affected: When the membranous covering of its ſuperior convex part, or the ligaments which unite it to the diaphragm are inflamed; the pain, fever, and difficulty of breathing are much more violent, than when its interior, pulpy ſubſtance, or its concave, inferior part are affected; which being leſs nervous are leſs ſuſceptible of the morbid cauſe.

If the nervous parts of the Liver are affected; the pain is more acute, and ſhoots upwards towards the cheſt, extending high as the neck, and particularly *affects the right ſhoulder*: The patient has generally a dry cough, with ſymptoms reſembling thoſe of pleuriſy, from which it may be diſtinguiſhed, by want of expectoration, and the pain being ſeated above the ſhort ribs,

chiefly on the right ſide: The degree of fever is alſo leſs, and the patient cannot lie on the left ſide without much pain; owing to tenſion of the connecting parts of the Liver, on the oppoſite ſide.

SUCH morbid affections of this organ ſhould alſo be diſtinguiſhed from that *deep-ſeated, fixed pain,* near the pit of the ſtomach towards the right ſide, attended with hiccough and vomiting, which often proceeds from *calculous concretions* in the biliary ducts.

THIS acute ſpecies of inflammation is to be treated, in many reſpects, like the *Pleuriſy*; namely, by copious and repeated bleeding, plentiful dilution with nitre, and where the pain and fever are violent, by the application of a large bliſtering plaſter to the right ſide. The patient's drink ſhould be given milk-warm, and the excretions of urine and ſtool ſhould be gently promoted; thoſe evacuations being here more neceſſary than in pleuriſy, from the patient's inability to expectorate, as in that diſeaſe.

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WHEN these means are ineffectual, the inflammation is sometimes terminated by *Scirrhus*, but more frequently by a fatal internal suppuration; for, there are few instances of the patient's recovery, except where the matter was freely discharged outwardly, and had no communication with the internal, vital parts.

ON the method of treating this dangerous inflammation of the Liver, called *Hepatitis*, as practised in the east Indies with extraordinury success, it may be necessary to enlarge.

INFLAMMATION of the Liver is usually terminated by *resolution*, *suppuration* or *scirrhus*: The first may be expected when the disease is recent, and medicines have been administered in due time; the second, where it is attended with much pain and fever; and the last, in bad habits of body, when it has been long continued, or confirmed by intemperance and hard drinking.

IF the inflammation ends by *resolution*, either from the efforts of nature, or the power of medi-

cines; that is moſt commonly effected by a critical hæmorrhage from the noſe, the bleeding piles, a copious diſcharge of turbid urine, or profuſe perſpiration.

IT has already been remarked, that where inflammation is ſucceeded by an abſceſs or collection of matter which diſcharges itſelf outwardly, the patient ſometimes recovers; and even when it breaks internally; inſtances have not been wanting, though uncommon, where being carried off, through the biliary ducts, into the inteſtinal canal, the event has alſo been favourable. On the contrary, if matter makes its way through the diaphragm into the cavity of the breaſt; it ſuddenly deſtroys the patient.

WHATEVER may have been the prejudices againſt Mercury in many diſeaſes of the Liver; the extraordinary ſucceſs of its exhibition ſufficiently warrants its uſe, in preference to other medicines. It has been ſaid, with ſome appearance of reaſon, that, conſidering the delicate, and almoſt pulpy conſiſtence of this organ, it might be dangerous

gerous to adminiſter Mercury, which, by increaſing the circulating power of the blood, inſtead of diminiſhing inflammation, might break down its tender texture, and occaſion a fatal, internal ſuppuration: Indeed, I confeſs myſelf one of the number who, in ſome degree, was influenced by this opinion; but repeated practical facts, well authenticated by thoſe who reſided in the eaſt Indies where the *Hepatitis* is moſt frequent and fatal, leave no room to doubt the ſuperior efficacy of Mercury; ſince they muſt have had ſufficient opportunity to obſerve the various effects of medicines, and the different termination of this diſeaſe.

DR. *Spink*, now phyſician to the Hoſpital at Bombay, Dr. *Coul*, and Dr. *Moody*, as well as Mr. *Perkins*, ſurgeon, who formerly were my pupils, and who all were many years in the India ſervice, unanimouſly agree, that Mercury, properly adminiſtered, is the principal medicine to be depended upon in *Hepatitis*. I ſhall not therefore here oppoſe thoſe principles which I have always endeavoured to main-

tain, viz. that well-eſtabliſhed practical facts ſhould, at all times, ſuperſede plauſible conjectures and unſupported theory.

IN confirmation of this aſſertion, a circumſtance of the humiliating kind here preſents itſelf to the medical Reader. The antient phyſicians, from their want of that anatomical, and phyſiological knowledge which the moderns poſſeſs, were obliged to reaſon by analogy where facts were wanting: Their invention was fruitful, and their ſurmiſes often plauſible and acute; but, they frequently erred, by truſting too much to ſpeculation and conjecture. They conſidered the *Small-pox* as a putrid diſeaſe of the eruptive kind, and ſuppoſing a conſiderable degree of fever neceſſary to throw out the eruption, and expel the morbid cauſe from the blood; they enjoined the patient a *heating regimen*, and directed warm, cordial medicines, which they called *alexipharmics*, to aſſiſt nature in forwarding this deſign: He was confined to a cloſe bed-chamber from which the refreſhing atmoſphere was aſſiduouſly excluded, and where he breathed a confined, inelaſtic, and putrid air; without being allowed to quench his intolerable thirſt

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by cooling drinks, or to exchange his ſuffocating chamber for one where he could breathe with more freedom.

By this rigorous, and oppreſſive treatment, the diſeaſe often became mortal; not ſo much from its own nature, as the dangerous ſymptoms from thence occaſioned; namely, petechial ſpots or purples, bloody urine, &c. which under ſuch circumſtances, were rather occaſioned by a putrid diſſolution of the blood, than the malignity of the diſeaſe itſelf.

In ſhort, from practical obſervation alone, we now certainly know, that this, was it ſo intended, would be the moſt certain method which could be deviſed, to deſtroy the patient; although it was the eſtabliſhed and uniform practice of former ages, till the time of the honeſt and judicious Sydenham who was often treated with arrogance and indignity by his medical brethren, for venturing to differ from the general opinion, and depart from ſuch fatal practice, for one diametrically oppoſite to it, namely, the *cooling Regimen*, by which the lives of many thouſands have ſince been happily preſerved.

All ſpeculation, therefore, apart; when copious bleeding, fomentations, and bliſters, with plentiful dilution, do not ſoon remove the ſymptoms of *Hepatitis*; after opening the bowels by a gentle purgative; recourſe is immediately had to Mercury, in the eaſt Indies, both internally given and externally applied, till a gentle ſpitting for a fortnight or longer, is brought on; by which, this dangerous diſeaſe is generally effectually cured.

In ſuch caſes, Plenck's preparation of Mercury with gum arabic, ſeems preferable to the reſt; for the mercurial particles remaining globular, and free from acrimony, they will from thence not only remain longer in the habit of body; but the ſtomach and bowels will be leſs injured, than by ſtimulating preparations of Mercury which have undergone a chemical proceſs.

So effectual has *Mercury* been found in the cure of this diſeaſe, in the eaſt Indies, when applied in this manner before ſuppuration of the affected part, that it is there deemed a ſpecific. In dyſentery and obſtinate fluxes, likewiſe where the meſenteric

mesenteric glands were obstructed, it has been found of great service given as an alterative: In dropsies also brought on by intermitting fevers, or tedious chronic diseases, where the abdominal viscera were supposed to be affected; the use of Mercury, till it excites a gentle salivation, has been attended with good success; especially when assisted with *diuretics*, and in the conclusion, by the *peruvian bark* and *steel*.

In this climate, the Liver is more frequently affected with diseases of the slow, chronic kind, tending to produce a scirrhus which is often the consequence of hard drinking, or an intemperate, sedentary life; especially in those of a bilious habit of body, and hypochondriacal temperament.

A *Scirrhus of the Liver*, like a treacherous adversary, makes its approaches by such slow, insensible degrees, and with so little pain, that the patient often becomes incurable before he is aware of danger; but a pale, livid aspect, and bloated habit, indicate a visible decline in his health; and as the various functions of the whole abdominal viscera

chiefly

chiefly depend upon the ſound ſtate of this organ; and ſince a confirmed ſcirrhus, inſtead of diminiſhing, has been found ſlowly to increaſe; it can be no wonder, that it generally proves incurable, and terminates fatally in *Dropſy*, *Conſumption*, or cancerous diſpoſition of the part.

A SCIRRHUS of the Liver is more certainly indicated by a ſallow, olive-coloured complexion, than a yellow colour of the ſkin, which rather denotes an obſtruction of bile, or the preſence of gall-ſtones.

IN the inferior concave part of the Liver it is difficult to be perceived; but in its convex part, on the right ſide, which is uſually the ſeat of this diſeaſe; the hardneſs and enlargement, in thin ſubjects, is manifeſt to the touch: In this caſe, the patient is generally affected with *nauſea and ſickneſs after eating*, when the ſtomach is repleniſhed with food, from the enlargement and preſſure of the diſeaſed Liver, by which its natural function is diſturbed; and on the contrary, the fulneſs of the ſto-

ſtomach will occaſion pain and oppreſſion about the region of the Liver, attended with difficulty of breathing and a cough.

EARTHY concretions, or a kind of chalky matter have ſometimes been formed in the biliary ducts, and even in the ſubſtance of the Liver itſelf, the lungs and other ſpungy parts of the body; it is alſo ſubject to ſteatomatous tumours or ſuch as contain a curd-like matter, and likewiſe thoſe of the cancerous kind, whoſe corroding qualities, on diſſection, have given it the appearance of a honeycomb.

LONG faſting, or abſtinence from drink, violent perſpiration, or ardent fevers, by depriving the blood of its fluidity, may diſpoſe it to ſtagnate in the ſmall veſſels, and induce a ſcirrhous tendency of the Liver: Sudden fear, exceſſive grief, or poiſons, by exciting ſpaſm, and conſtringing the biliary ducts, may alſo have the ſame effect.

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We have remarked that morbid affections of the Liver, arising from obstruction, are sometimes terminated by bleeding piles, or a hæmorrhage from the nose: Such a discharge may be accounted for, by attending to the distribution of its vessels which receive their blood from the abdominal viscera, and are all concentrated in one common trunk, to be distributed through its substance: Hence, it will be evident, why the blood makes its way through *devious passages*, when it is obstructed in its natural course, and cannot circulate freely through its own canals.

Various, and almost innumerable have been the medicines recommended for removing *obstructions of the Viscera*; many of them possessed of efficacy, and others so inert and void of power, that it might be said with truth, their greatest excellence consisted in not being able to do harm.

As it is matter of real consequence to ascertain the effects of those medicines which, upon trial, have been found most efficacious; I shall mention such

ſuch only; and endeavour to point out, under what circumſtances, benefit may be expected from them, and upon what principles they are ſuppoſed to act; but I am far from thinking it poſſible, to account, in a ſatisfactory manner, for many extraordinary changes produced in the living body, either from the efforts of nature, or the operation of medicines.

ALTHOUGH Mercury is a medicine of acknowledged efficacy in local affections of the Liver, when ſeaſonably adminiſtered in the beginning; there are caſes where its uſe would be exceptionable and improper: For inſtance, when the patient is of a weakly *conſumptive habit*, and labours under hectic fever proceeding from a *decay of the vital parts*; it has been found prejudicial; alſo in *tedious affections of the Viſcera*, occaſioned by a long courſe of intemperance, or hard drinking, tending to produce a confirmed ſcirrhus.

IN ſuch chronic maladies, *alteratives* of a more gentle kind, as thoſe of vegetables which act by their ſaponaceous, attenuating quality, are more

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ſafe and beneficial: Of this ſort are *taraxacum*, (dandy-lion,) *ſuccory*, *quick-graſs roots*, and ſuch as abound with a milky juice, which taken in freſh, runnet whey, during Spring and Autumn, are of greater efficacy than is generally imagined; eſpecially when duly and long continued, as all alterative medicines ought, the more effectually to produce a gradual and laſting change in the conſtitution.

MILK is chiefly compoſed of three parts, namely, of cream or animal oil; curd or cheeſy part; and whey or watery part; the laſt of which may be conſidered as a fine, animal fluid or ſerum ſeparated from the groſſer parts of milk, which eaſily mixes with the blood, and when rendered more aperient by the addition of *lixivial ſalt*, or impregnated with the attenuating juices of vegetables, is a ſafe and efficacious deobſtruent, in obſtinate obſtructions of the Liver, and Viſcera.

WHEY contains a ſweet, ſaccharine part, and alſo an oily, ſaponaceous mucilage, from which it alſo poſſeſſes ſolutive, and attenuating qualities; and

and being friendly to the ſtomach and bowels, is proper to keep the body laxative when they are in a tender, excoriated ſtate, and where harſh purgatives would be hurtful, or even dangerous. Whey will alſo be found extremely beneficial when the bladder, or urinary paſſages have been irritated and fretted by gravel or ſabulous matter.

ALBUMEN OVI or white of freſh, raw eggs, is alſo a ſaponaceous, animal fluid of exquiſite fineneſs, and ſimilar to the lymphatic part of the blood; diluted with diſtilled water, or freſh whey, when liberally taken, it will generally *cure the jaundice*; and in weakly conſtitutions, has frequently ſucceeded in that diſeaſe when other means failed.

IT has been obſerved, that when warm fluids had been injected into the inteſtines, or even into the abdominal cavity of living animals, not a drop could be found after death; the whole being abſorbed by the lymphatic veſſels. From this known fact, and by attention to the ſtructure of the Liver, already deſcribed, this practical inference will follow, viz. that in all diſeaſes of that organ,

or thoſe of the abdominal viſcera in general; ſuch medicinal ſubſtances as are appropriated to their cure, may be more immediately conveyed to the affected parts, by *clyſters*, than any other means; for, being *abſorbed by the lacteals, and meſenteric veins, they are carried directly through the Liver by the Vena Portæ*, and with this peculiar advantage, that, not being altered by undergoing the digeſtive force of the ſtomach, like medicines taken by the mouth, they will be tranſmitted to the ſeat of the diſeaſe, poſſeſſed of their whole medicinal properties.

Saponaceous Clyſters, therefore, or *lixiviated Whey* being injected into the inteſtinal canal, will there be abſorbed and immediately conveyed to the Liver with the refluent blood which, as repeatedly obſerved, it receives from the abdominal contents. In this manner the deobſtruent power of medicines will not only act with their full force upon the obſtructed glands of the viſcera, but by mixing with the blood and juices will render them more fluid, and fit to paſs through their fineſt ſtrainers.

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THE use of clysters, in this country, is not so common as in many parts of Europe, where they are frequently administered for refreshing the body, as well as in the cure of diseases: They have indeed, been mentioned among other remedies, in a general way; but their extraordinary efficacy has not been particularly insisted upon, nor have reasons been assigned drawn from the structure, and functions of the affected parts, why, particularly, in *diseases of the Viscera*, they will be found more powerful than other remedies. In the magnificent Hospital of *Santa Maria Nova, at Florence*, several years ago, I had an opportunity of remarking their good effects. They are by some named *visceral injections*, from their being peculiarly appropriated to diseases of the bowels; and as I have since, from repeated experience, been convinced of their exceeding benefit, in such cases; I could wish that this observation might be regarded with attention.

Absorption of fluids by the lymphatic vessels of the skin, being also found very considerable, and a fact no longer to be doubted, may suggest the use of a *warm Bath*, as another powerful

Remedy in ſcirrhous affections of the Liver, and glandular obſtructions of the viſcera. It has been experimentally proved, that the whole ſurface of a human body, in the ſpace of fifteen minutes, may abſorb near ſeven pounds of water: A *warm Bath*, therefore, will greatly aſſiſt in the cure of ſuch diſeaſes: Warm water when received into the ſyſtem, by its relaxing power, will ſoften the obſtructed veſſels, and tend to diſſolve their glutinous, impacted fluids; and thoſe good effects may the rather be expected, conſidering its action on the ſkin as a *univerſal fomentation, and the extraordinary ſympathy between the ſurface of the body, and internal, vital parts*, which has been particularly mentioned in the third Section of this Eſſay.

As the quantity of water imbibed by the *abſorbents* will be proportionable to its lightneſs, and purity; that which is ſoft will be moſt proper for the purpoſe of a bath; and ſince moſt water contains a certain quantity of vitriolic acid, and earthy matter; it will be neceſſary to add a ſufficient portion of ſoap, or lixivial ſalt to neutralize the acid, and render the water more pure, by precipitating its calcarious earth; conſequently, it will become

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more penetrating and deterſive. A handful of elder-flowers may be thrown into the bath at the time of uſe, to give it an agreeable odour.

BY coughing, ſneezing, and other violent efforts of the body, particularly *vomiting*; the blood is driven through the whole vaſcular ſyſtem with increaſed celerity; *Emetics*, therefore, will alſo be of conſiderable ſervice, in chronic diſeaſes of the Liver; eſpecially in cold, phlegmatic conſtitutions; but they ought to be directed with great caution, and chiefly in caſes where the obſtruction is recent, and the vital parts ſound; or at leaſt, before the Liver is become ſcirrhous, and broken down. If this caution be diſregarded; a *confirmed ſcirrhus*, by being thus irritated and inflamed, may be converted into an *incurable cancer*.

EMETICS are alſo leſs proper in acute diſeaſes of the Liver, attended with pain, general inflammation, and hectic fever; but where the ſymptoms are of the chronic kind, proceeding from ſpaſm, or ſimple obſtruction, with a defective ſecretion of bile; they have been found of the greateſt ſervice; eſ-

pecially, after the uſe of *alterative medicines*, and the warm bath, or thoſe attenuants which have already been ſpecified; for, by the action of vomiting, the Liver is not only ſtrongly acted upon and compreſſed by the abdominal muſcles, and ſurrounding parts, but, being contiguous to the ſtomach, is agitated and ſhaken by its repeated efforts.

BY *vomiting*, and the agitation which the whole abdominal contents thereby undergo; the motion of blood through the viſcera will be greatly increaſed; conſequently, it will be more freely tranſmitted through the ſeveral, intricate, vaſcular ſyſtems of the Liver. Hence, a ſea-voyage and its attendant *ſickneſs*, by acting more permanently, and with greater power, as well as by the copious evacuation of bile which it generally occaſions, may ſtill have additional efficacy.

AN opiate, after the operation of the Emetic, will be neceſſary; particularly, in caſes attended with pain, or in thoſe of irritable habits: It uſually promotes perſpiration; conſequently, by relaxing the

the ſolids, and abating ſpaſmodic conſtriction of the veſſels, it may alſo aſſiſt in removing obſtruction.

PURGATIVES, ſeaſonably directed, will likewiſe have their uſe in caſes of *hepatic, or bilious obſtruction*; for, as the bile ſtimulates the inteſtines and naturally promotes their diſcharge; coſtiveneſs will generally be the attendant of ſuch affections. It will therefore not only be neceſſary to direct gentle laxatives as ſubſtitutes for the deficient bile; but, in particular caſes, occaſionally to adminiſter a ſmart purgative pill, with *a grain or two of calomel, and of aloes and ſoap, three grains each*, which, by its ſtimulus, may help to diſlodge, and carry off thoſe groſs, ſtagnating humours from which diſeaſes of the viſcera ſo often originate; and ſuch ſalutary effects may more reaſonably be expected, as we conſtantly find, that in all diſorders of the ſtomach and bowels, whether they are originally, or ſymptomatically affected, the patient is generally relieved by *ſpontaneous vomiting or purging*.

BESIDES, ſince *Purgatives* operate more immediately upon the alimentary tube which is connected with the affected parts, they will be more likely, by their ſtimulus, to *diſlodge biliary concretions*, and give motion to the ſtagnating bile; eſpecially, as the common canal, through which the bile paſſes into the inteſtine, is formed by the union of the cyſtic and hepatic ducts proceeding from the Liver: This obſervation is confirmed by experience; for we know, that, by ſuch means, biliary concretions have frequently been voided.

IT has been experimentally found that *Electricity* accelerates the motion of fluids, and is a remedy of great efficacy in caſes of obſtruction, or whenever there is want of circulating power: A capillary tube which will only tranſmit water by drops, being electrified, will inſtantly allow it to paſs in a full ſtream. Its effects on animal, and vegetable bodies are not leſs extraordinary; in the firſt, it increaſes the blood's motion, as is evident from its raiſing the pulſe; and the growth of plants is remarkably promoted by it, as well as animal, and vegetable perſpiration.

CONSIDERING,

CONSIDERING, therefore, the complicated vascular systems of the Liver, the infinite number of its vessels, and the *sluggish motion of their fluids*; there is no part of the human body more likely to receive benefit from gentle strokes of electricity, applied to the region of the Liver, whenever its vessels are obstructed, or the progress of its fluids preternaturally retarded; which will more evidently appear from the success of its application in cases of *obstructed menses*, and in *dispersing ganglions of the tendons, or other hard tumours*.

WHEN inflammation seizes the inferior, concave part of the Liver where the gall-bladder and its ducts are placed; a fixed, indolent, but deep-seated pain, with a sense of weight, and burning heat, is perceived on the right side; and the countenance is generally yellowish, or of a pale olive colour: The patient is often affected with *pain in the right shoulder*; much thirst, nausea with vomiting, and sometimes hiccough; although the *pulse, especially in the beginning of the disease, is very little different from its natural state*; a circumstance the more extraordinary as in

in moſt diſeaſes where the vital parts are firſt attacked, the pulſe ſuddenly intermits, and loſes its firmneſs.

THIS *chronic ſpecies* of diſeaſe may proceed from any impediment to the ſecretion of bile in the Liver, and its free diſcharge from thence, through the biliary ducts into the inteſtinal canal.

THE principal of ſuch cauſes are, *biliary concretions*, the immoderate uſe of *ſpirituous liquors*, *ſudden fear*, or *mental anguiſh*; alſo *nephritic pains*, or violent irritation of the ſtomach and bowels, from the uſe of ſtrong emetics, draſtic purgatives, or poiſons; for it is neceſſary to remark, that although profuſion of bile is often a conſequence of the laſt cauſes; ſpaſmodic conſtriction of the gall-ducts has alſo been known to follow their uſe; ſo that the ſame cauſe may produce different effects, according to the ſtate and condition of the body at different periods of time; or as the nerves of certain individuals are then affected by different ſenſations.

THIS

THIS obſervation is particularly exemplified in the female conſtitution; where a fright or violent ſurpriſe which put a ſtop to the periodical flux in one perſon, ſhall occaſion its profuſe diſcharge in another. In like manner the *jaundice* may happen from *Spaſm*, by immoderate grief, as I have frequently ſeen; and by poiſons, or the like cauſes; which, for a time, produce a conſtriction of the gall-ducts, and prevent the paſſage of bile into the inteſtines.

EVERY diſeaſe of the Liver is not attended with *jaundice*, nor is every jaundice attended with a *diſeaſed Liver*; even thoſe occaſioned by gall-ſtones, when the aperture of the gall-duct is not totally cloſed, are exempt from it; but in general, when its concave ſide is affected; the inflammation communicates itſelf to the contiguous gall-ducts, and obſtruction of bile is the conſequence, with yellowneſs of the ſkin, urine, and whites of the eyes; by a diffuſion of that bile through the general habit, which naturally ought to have paſſed off from the Liver.

WHERE

WHERE *Gall-Stones* obſtruct the biliary ducts, the patient feels an uncommon weight, and ſickly, oppreſſive pain about the region of the ſtomach, chiefly on the right ſide, (at the heart, as he expreſſes it,) attended with nauſea, vomiting and loſs of appetite; he becomes indolent and inactive, as if deprived of his uſual power and alacrity to move; and when the diſeaſe is of long continuance, daily loſes fleſh and ſtrength.

BUT as ſuch ſymptoms are common to other diſeaſes, and therefore, equivocal and uncertain; it is neceſſary to diſtinguiſh them more truly, by pointing out thoſe peculiar to this malady; the moſt certain of which are, a coſtive habit, and pale, clay-coloured ſtools; with yellowneſs of the ſkin, urine, and whites of the eyes.

THIS diſcoloration is generally preceded by burning heat and excruciating pain, near the pit of the ſtomach, on the right ſide; which is more or leſs intolerable, in proportion to the degree of obſtruction, the ſhape, and magnitude of the ſtone about

about to be voided, the conſtriction of the duct through which it is to paſs, and the force with which it is puſhed forward: Hence the duration and degree of pain will be different, in different ſubjects, according to the lax or tenſe ſtate of the ſolids, and the irritability and ſenſibility peculiar to each: It will alſo be moſt violent when their fibres are put upon their full ſtretch, and the ſpaſm greateſt, by which ſtones are to be expelled; that is, when the gall-ducts re-act or endeavour to reſtore themſelves, by the natural coheſion and elaſticity of their parts.

If with thoſe ſymptoms, the violent, deep-ſeated pains, have their remiſſions, and return as it were by fits, and are *ſucceeded by Jaundice, with a very ſlight degree of fever, and but little alteration of the pulſe*; there is then the higheſt probability of gall-ſtones; and proper remedies ſhould be directed without delay: So that it is chiefly by the concurrence of thoſe *ſymptoms which are peculiar to biliary Concretions*, that their exiſtence in the body can certainly be known.

YELLOWNESS

YELLOWNESS of the ſkin is plainly a ſymptom or conſequence of the pain which, in caſes of paſſing a gall-ſtone, always precedes it; and which, although extremely violent, is ſcarcely, as obſerved, *attended with fever, or alteration of the pulſe, as in other painful diſeaſes; a circumſtance ſo peculiar to this malady*, that it ſeems the very *criterion* or mark of diſtinction by which it may be more certainly known from all others. It may be aſked, *why excruciati*[illegible]*n is not here attended with fever*, and why th[illegible]nt in this diſeaſe is uſually affected with pain i[illegible]right ſhoulder?

BUT the ſymptoms ariſing from the mere preſence of biliary concretions, are very different from thoſe which attend their expulſion; for, the firſt are of the indolent and oppreſſive kind; but the laſt have ſometimes been ſo excruciating, and intolerable, as to produce fainting, and convulſions, or even, for a time, to deprive the patient of all ſenſe and motion; but ſoon as the ſtone has made its way into the inteſtine, the painful ſymptoms vaniſh as if by a charm; although

he

he is languid, and feels internally the ſenſations of ſoreneſs about the region of the ſtomach, as after a bruiſe or fall.

The excluſion of *calculi* is alſo uſually attended with a *vaſt degree of flatulence in the bowels*, and diſtenſion of the ſtomach; and are voided with more eaſe in women, and thoſe of lax fibres, or ſuch as are delicate, than others of a contrary habit: An erect poſition is painful [illegible] the patient finds eaſe by the deflexion of [illegible]y; and it may be remarked, that havi[illegible]d large ſtones, ſhould any ſtill remain, he h[illegible]ss to dread in future, the gall-duct being [illegible] forced open and ſufficiently dilated for their exit.

It ſhould alſo be obſerved, that thoſe *rigors* or ſlight ſhiverings which here affect the patient, and generally denote ſubſequent fever, or the formation of matter, in other diſeaſes; are not, in bilious caſes, followed by the ſame bad conſequences; and withal, if ſuch as are ſubject to jaundice have been ſometimes laxative, inſtead of coſtive, as already mentioned; that may eaſily be accounted for, from the violence of pain acting as a ſtimulus

ſtimulus and exciting an expulſive motion of the inteſtines, even when they are deprived of their natural irritation from bile.

THAT ſtones have been frequently found in the kidneys and urinary bladder, we know from thoſe who have experienced their painful effects; but that they *ſo often exiſt in the gall-bladder and its ducts*, or the Liver itſelf, and many other parts of the bo[…] is a fact more remote from general obſerv[…] ſo that, till of late, the particular, *character*[…]*ptoms* of *biliary concretions* were very inſuf[…]y known or attended to, either by the patient or p[…]ſician.

Dr. Haller, with [ſ]ome of the moderns, believes, that gall-ſtones, or as they are more properly called, *biliary concretions*, are much *more frequent even than thoſe of the kidneys and bladder*; but as the firſt are expelled into the alimentary tube, and voided with fœces, they eſcape the patient's attention; and his painful ſymptoms are imputed to a fit of the bilious colic, or miſtaken for other diſeaſes; and it may be remarked, that

ſuch

ſuch as are ſubject to *gout, or gravel and ſtone* in the kidneys and bladder, are of all others moſt liable to gall-ſtones.

WOMEN alſo, at a *critical time of life*, from the change which then happens in their conſtitution, are extremely ſubject to *viſceral complaints*, and among the reſt, thoſe proceeding from gall-ſtones; to which, according to the obſervation of *Hoffman*, they are much more ſub[illegible]han men; eſpecially, when they uſe little ex[illegible]d labour under anxiety of mind, that alon[illegible] ſufficient to conſtringe the gall-ducts, and [illegible]duce *yellowneſs of the ſkin and obſtruction* [illegible] *Liver*, which lately occurred to me in the caſe of a Lady I attended near Portland-place, abo[illegible]t the time when a ceſſation of the periodical diſcharge might naturally be expected.

JANUARY 6, 1792, ſhe perceived a movement or convulſive flutter in the abdomen, attended with a vaſt degree of flatulence and diſtenſion, from which ſhe imagined herſelf pregnant. She complained of very acute pain, on her right ſide, ex-

tending acroſs the pit of the ſtomach, which generally returned about noon, with ſhortneſs of breath, giddineſs of the head, and extreme low ſpirits; theſe ſymptoms always left her with a *hoarſeneſs*, as if ſhe had a violent cold: Her habit was coſtive, and the fœces pale; in a few days her *face became yellow*, and her urine was tinctured with the ſame colour. Still perceiving the motion already mentioned, ſhe perſiſted in the idea of being with child; alth[illegible]h the ſymptoms clearly indicated an obſtructio[illegible]ile, from gall-ſtones, or conſtriction [illegible]iliary ducts; the laſt of which appeared [illegible] probable, as ſhe had been much affected by th[illegible]eath of a near relation, and informed me, that [illegible]uring a ſhort reſidence at *Madrid*, ſhe formerly [illegible]ad a ſimilar complaint, from anxiety of mind, though in a leſs degree.

I DIRECTED a laxative mixture to be taken occaſionally, and every night an injection with ſoap and whey; ſhe was requeſted to go into the warm bath when the pain was violent, and to take a ſmall pill with one grain of opium. A bladder half-

filled

filled with warm water, and wrapped in flannel was applied to the affected ſide, and ſhe frequently took an emulſion of ſweet almonds with lixivium of tartar and manna. By the uſe of theſe medicines ſhe found great relief and abatement of pain; the yellowneſs of her complexion gradually diſappeared, and, a few weeks after, ſhe went into Northamptonſhire for the benefit of air and exerciſe.

Biliary concretions are generall[illegible]t the ſize of peas, or kidney-beans; but [illegible]rs of the moſt unqueſtionable veracity, w[illegible]old, they have been found of the enor[illegible]us magnitude of a pigeon's egg, or even a[illegible]walnut; ſo as in a manner to occupy the whole cavity of the gall-bladder, or its duct where they were lodged, and which has thereby been dilated to a vaſt diameter, ſo much as to admit the largeſt finger; and in caſes where the duct was totally obſtructed, the gall-bladder has been ſo enlarged and diſtended with bile, as to have been miſtaken, by the touch, for the fluctuation of matter in an abſceſs of the Liver. A remarka-

 ble

ble inſtance of this kind may be found in the Edinburgh Medical Eſſays, vol. ii. p. 357, in a boy, injured by a fall, where eight pounds of bile were contained in the gall-bladder with enormous diſtenſion of that part.

IN ſome extraordinary caſes, ſtones have been found in the gall-bladder, after death, without any morbid affection of the part having preceded: T[illegible] I think, tends to prove what I have alre[illegible]anced, viz. that where *gall-ſtones are form*[illegible] *by concretion*; the Liver may remain i[illegible]d ſtate, and conſequently be free from pain or [illegible] inconvenience, till they become ſo large as to ob[illegible]uct the biliary duct.

SUCH concretion, [illegible]om the ſmoothneſs of its ſurface, may not produce pain, but, like a ſtone in the urinary bladder, remain inactive, till put in motion by ſome *exciting cauſe* which renders the body irritable, and diſpoſes the affected parts to inflammation, viz. intemperance or errors in diet, taking cold, or violent agitation of body or mind; for, exceſs of anger alone has been known to affect the Liver and produce *Jaundice*.

SOME

SOME have ſuppoſed, that gall-ſtones are formed by the coagulation of bile, from an *acid* in the inteſtinal canal, inſinuating itſelf through the common duct into the gall-bladder; but this ſeems a vague and ill-founded opinion which neither correſponds with the *ſtructure* and *ſituation* of thoſe parts, or obſervations ariſing from the ſymptoms of the diſeaſe.

IT would, for inſtance, be a ve[illegible]probable conjecture, that an *acid fluid* ſhoul[illegible] from its courſe downwards in the large inte[illegible]al, and take a lateral direction, through t[illegible]mall biliary duct, even in oppoſition to bi[illegible]wing from the gall-bladder into the inteſtine.

BESIDES, if this opinion was true, it would then follow, that young people, who of all others, are moſt affected by *Cardialgia*, or heart-burn, from a redundant *acid* in the ſtomach and firſt paſſages, would be more ſubject to biliary concretions than adults, which is contrary to practical experience; for, gall-ſtones have ſeldom been

found in young ſubjects, but, on the contrary, are frequent at an advanced period of life, where an acid ſeldom abounds.

THE bile when obſtructed and diffuſed in a large and preternatural quantity through the general habit, being a heterogeneous fluid and foreign to the maſs of blood, will diſſolve it, and occaſion *hæmorrhages*; and by its acrimony, bring on ſuch an intolerable i[illegible]hing of the ſkin, that the patient can take no r[illegible]

As J[illegible] does not always happen from every morbi[illegible]ffection of the Liver; ſo it ought to be ſome con[illegible]ation to the patient, that every ſpecies of jaundice does not indicate a diſeaſed Liver; more particularly that which is occaſioned by gall-ſtones, improperly ſo called.

ALTHOUGH thoſe concretions may ſomewhat differ in their compoſition; the greateſt part of them manifeſtly appear to be nothing but *inſpiſſated bile* which, held to a lighted candle, will flame like coarſe wax, and being generally *without a nucleus* or central baſis, deſerve not the name of ſtones.

BILE,

BILE, by a property common to all glutinous fluids in a ſtagnating ſtate, will thicken and concrete by the evaporation of its fluid, and the mutual attraction of its groſſer parts; conſequently, *gall-ſtones may thus be ſimply formed, without any morbid affection of the Liver itſelf, or the parts peculiar to it.*

AGREEABLE to this obſervation, we find that thoſe who lead an inactive, ſtudiou[illegible] where the motion of cyſtic bile is ſluggi[illegible] retarded in its progreſs into the inteſtines, [illegible]ll others moſt ſubject to ſuch concretion[illegible]s a farther confirmation of this reaſoning [illegible]all-ſtones have generally been found in the gall-bladder itſelf, where the bile ſtagnates, and [illegible]ot in its ducts where it circulates; and becauſe, many who had voided gall-ſtones, afterwards remained in perfect health; which clearly ſhew, that, independent of tenacity, the bile, in ſuch caſes, may be free from depravity; and that its *ſimple concretion only is ſufficient to account for the formation of gall-ſtones.*

THIS remark, however, ſhould by no means flatter the patient with ſuch perfect ſecurity, as to withdraw his attention from every poſſible method of preventing the diſeaſe which in advanced age, and a bad habit of body, is extremely apt to return; eſpecially if he has been affected by *gout*, and *gravel*, or his conſtitution is much broken and impaired by intemperance, or preceding chronic diſeaſes which hinder him from uſing ſuffi nt exerciſe.

WE a med by Dr. *Gliſſon* of a curious circumſtan ative to this matter, namely, that in brute anima particularly horned cattle, gall-ſtones were much oftener found in winter, when they were fed on dr food, and ſtood ſtill; than in ſummer, when they uſed exerciſe, and fed on green herbage; from which it was concluded, that *dry food, and want of motion* contributed to the formation of thoſe *calculi*; and that they were diſſolved by the power of exerciſe, and the ſaponaceous, attenuating juices of vegetables.

THOSE

THOSE who thought themſelves affected by *gall-ſtones*, now began to eat graſs like quadrupeds; and *Van Swieten* tells us of a poor man whom he adviſed and encouraged to live almoſt wholly upon it, in hopes of a cure. He perſevered in the uſe of it two whole years, the winter-months only excepted, and boiled large quantities of graſs in water ſweetened with honey, which was his common drink, and alſo in broth which was almoſt his only food; in ſhort, he devoured ſuc[illegible]rge quantities of it that the farmers drov[illegible] by force from their fields. By this metho[illegible] told, he obtained a complete cure of a ver[illegible]ate jaundice, by which his *ſaliva was becom[illegible]itter*; but we are not informed whether he vo[illegible]ed gall-ſtones or not; although the ſame reſpect[illegible]ble author informs us he never knew an inveterate yellowneſs of the ſkin perfectly cured without the excluſion of thoſe concretions.

THE veracity of the accurate and indefatigable *Gliſſon*, ſo far as it relates to facts, ſeems unqueſtionable; but the deduction from them does not, by any means, tend to eſtabliſh or confirm the opinion, that gall-

gall-ſtones may be diſſolved by freſh vegetables. They might, indeed, be found in ſome cattle in winter, and others in ſummer be free from them; whence it may as reaſonably be concluded, that thoſe diſcovered in winter had perhaps been formed the preceding ſummer; and that, in ſuch as were examined in ſpring or ſummer, and found free from them, they had never exiſted at all.

THAT particular kinds of dry, viſcid food, without a ſuff[illegible]uantity of fluids to diſſolve and diſjoin its [illegible] the want of exerciſe, to agitate and kee[illegible]luids in motion, may favour the formation o[illegible]liary concretions in the human ſubject, there [illegible]be no doubt; but ſince they have been found ſo difficult of ſolution out of the body, and many of them not to be diſſolved at all, according to experiments accurately and judiciouſly made with ſolvents of the moſt powerful kind, as *ſoap-ley*, *lime-water*, *lixivial ſalts*, and the like; it is not probable, they will yield to ſuch ſubſtances when taken by the mouth, and conſiderably diveſted of their natural qualities, by the digeſtive power of the ſtomach, and dilution with animal fluids.

SEVERAL

SEVERAL years ago, a medicine for diſſolving gall-ſtones, was ſtrenuouſly recommended. It conſiſts of two parts of *etherial ſpirit of vitriol*, and one of the *diſtilled oil of turpentine*; the doſe, fifteen drops or more, twice a day, or taken for a conſiderable time in clarified whey; but this, like other things given with the ſame intention, was not found to produce the deſired effect; nor could any ſuch conſequence be reaſonably expected from it; except by ſuch as are leſs fond of truth [illegible] fair promiſes; of which, fortunately for qu[illegible] [illegible]poſtors, and water-doctors, the number is [illegible].

BUT although, I believe, gall-ſ[illegible]s are too far from the reach of medicines t[illegible] diſſolved; experience proves *that they may b[illegible] expelled*, and there is great reaſon to ſuppoſe *th[illegible]y might generally be prevented:* But, at all events, the painful ſymptoms proceeding from them will admit of relief, and they may *as certainly be diſcharged from the body, as thoſe of the kidneys and urinary bladder*; notwithſtanding the opinion of ſome authors of the firſt repute, who, ſcarcely half a century ago, declared them *incurable*; ſo imperfectly was their true nature, or rational treatment then known.

IF

IF from repeated experience we are certain that biliary *calculi* have been expelled from the gall-bladder, by the ſimple efforts of nature, like thoſe of the urinary bladder; there is *ſtill greater reaſon to hope for a cure*, from the additional aſſiſtance of art; eſpecially, as medicinal ſubſtances act immediately upon the ſtomach and alimentary tube with which the diſeaſed parts ſympathize, and are cloſely connected.

THE[illegible]deed reaſon to hope that ſuch concreti[illegible] be more certainly expelled from the gall-[illegible]ven than *calculi* from the kidneys, and urinary b[illegible]der; conſidering the ſhortneſs of the paſſage from the gall-bladder into the *duodenum*, compared with that of the *ureters* thoſe long and narrow canals which muſt convey them, with the urine, from the kidneys into the bladder; and afterwards the great difficulty of their progreſs, thence, through the *urethra*.

THE pain and difficulty of voiding a gall-ſtone chiefly proceed from the narrowneſs and peculiar ſtructure of the gall-duct, and its oblique direction; for,

for, it *runs almoſt an inch between the coats of the inteſtine* before it finds entrance into its cavity: Thoſe membranous coats being firm, compact, and endowed with exquiſite feeling, make great reſiſtance to the progreſs of the ſtone, and renders its excluſion both difficult and painful. Hence, alſo, when the inteſtine or *duodenum* into which it opens, is diſtended by wind and fœces, or affected by any ſpaſmodic conſtriction; the gall-duct, paſſing between its coats, will be co[illegible]ſed and ſhut up, and the flux of bile into [illegible], for a time, thereby prevented.

FROM this circumſtance it wil[illegible] appear, why a ſtone ſeldom paſſes, until the [illegible]ain and ſpaſm of the affected parts abate, and the fibres are relaxed; likewiſe why forcing medicines, or thoſe of the heating kind, would then be improper and even *dangerous*; by adding to the irritation and painful diſtenſion excited by the gall-ſtone.

BUT although the diameter of the gall-duct is naturally little larger than that of a gooſe-quill; ſuch is its ſtructure, as to admit of dilatation and allow gall-ſtones to paſs which are equal

equal in ſize to a pigeon's egg, and ſometimes much larger; of which many examples may be found in authors of undoubted veracity.

To account for this extraordinary dilatation, and how ſtones of ſuch incredible magnitude could make their way through ſo narrow a paſſage; it is neceſſary to remark; that this part, like the *ureters*, is compoſed of fibres which will allow of vaſt diſtenſio[illegible]he force by which they are ſtretched be gra[illegible]plied; as may alſo be obſerved in large, [illegible]ours, affecting the inhabitants of the *Alps*, [illegible]h become of enormous bulk without breaking [illegible] fibres of the ſkin.

In like manner [illegible]e diameter of the gall-duct is capable of great enlargement, from the gradual motion given to the ſtone, by the impulſive force of the ſpaſm; and it is happy for the patient, ſince *gall-ſtones cannot be diſſolved*, that although his ſufferings from their excluſion are ſevere for a time, he may thence have reaſonable expectation of laſting eaſe.

GALL-

GALL-STONES, when very ſmall and ſmooth, may glide through their ducts unperceived; but being large, or angular, they are voided with extreme torture, which will be moſt exquiſite when they are obſtructed and ſtick in the very orifice opening into the inteſtine, this being a nervous part, and like its internal ſurface, endowed with great ſenſibility.

WHEN the ſtone is ſo large that [illegible] not advance, and totally cloſes the natu[illegible]e; the bile being obſtructed, muſt then [illegible]ily *regurgitate from the cyſtic into the he*[illegible]*c duct*, and thereby aſcending to the Liver, [illegible] be abſorbed into the blood, as evidently appears by tinging its ſeveral fluids of a yellow hue; ſo that the ſkin, whites of the eyes, the urine and even the ſpungy parts of the bones have been found of the ſame colour.

ABOUT three years ago I was deſired to viſit Miſs *B.* at *Iſlington*, affected with jaundice from deep diſtreſs of mind, in whom the *ſaliva* was yellow like ſaffron, and all the above ſymptoms appeared in a

degree

degree more violent than I had ſeen before; this was the only patient I ever attended, in whom the diſeaſe became mortal.

As, in this caſe, the animal fluids, in general, were become yellow, ſo perhaps might *the aqueous humour of the eye*; *and probably*, *objects ſeen through it, might appear of the ſame colour*; but I cannot truly aſcertain the fact, although I was afterwards much [illegible]fied, that a thing ſo long in doubt, and ſo [illegible]pportunity to determine its uncertainty, [illegible] then have eſcaped my attention.

SHOULD the yellowneſs of the ſkin diſappear, after the violent pain, and ſpaſm which occaſioned it, are gone off, and the *Jaundice* be thus terminated without the diſcharge of gall-ſtones; it has been ſuppoſed that the ſtone, if ſuch it was, had then receded or, fallen back into the gall-bladder: When this is the caſe; the patient has great reaſon to fear a future attack, which is likely to be brought on by ſome of the *exciting cauſes* already mentioned.

WHEN

The jaundice is generally terminated by the exclusion of a gall-stone, a copious discharge of turbid urine, or profuse sweat, the hæmorrhoidal flux, or a bleeding from the nose.

If all attempts to expel a gall-stone become ineffectual; the patient's health must suffer in proportion to the obstruction of bile: When it is only partial; costiveness, and redundant acid in the stomach and first passages, will be th[illegible]quence, attended with a sallow countenance [illegible]ed habit: But if, unfortunately, the *obstruc[illegible]omes total*, the body will unavoidably wast[illegible]nd decline; for, without bile neither digestion, nutrition or the excretion of fœces can be duly performed: In this particular case, pills made of the *inspissated bile of animals* may be administered; especially that of the pike or eel, which is most detersive. Under the preceding circumstances, the patient will also be subject to *hæmorrhages*, from that putrid dissolution of the blood, consequent of its absorption; which generally leads to an *incurable Dropsy*, or some other fatal chronic malady.

In this ſtate of diſeaſe it has been termed *black Jaundice*, and with great reaſon deemed incurable; for, although the gall-ſtone ſhould at laſt be expelled, and notwithſtanding that might have been the original cauſe of the diſeaſe; the blood being corrupted and the conſtitution broken; a cure can ſcarcely be expected, becauſe the affected parts are unſound, and haſtily tending to diſſolution: In fact, what is called *black jaundice* is not a diſtinc[illegible]lady, but only an *inveterate ſtate of one* [illegible]*e ſame diſeaſe*, attended with a bloated [illegible] and change of complexion to a *livid hue*, [illegible]m the extravaſation of diſſolved, putrid juices, i[illegible] the cellular membrane, which will be moſt apparent on the ſurface of the body, under the eyes, and on the temples, where the ſkin is thin and the circulation moſt languid.

The general treatment of *hepatic affections* being already laid down, it can only be neceſſary to ſpecify that peculiarity of practice, which is required during the *exceſſive pain of voiding a gall-ſtone.*

WHEN this pain is ſo excruciating as to bring on faintings, or convulſion; *Opiates*, the *warm Bath*, and *emollient*, *opiate Clyſters* which diminiſh pain, and by their relaxing power counteract the ſpaſm and ſtricture of the gall-ducts, are the principal medicines to be depended upon for relief; but if, notwithſtanding, it continues exceſſively acute; the loſs of blood, though by ſome deemed a doubtful remedy, is alſo highly neceſſary, eſpecially in thoſe of ple[illegible]c habits; for, by taking off the tenſion an[illegible]eſcency of the veſſels, and abating inflamm[illegible]n; the ſtone will be much more likely to paſs; eſpecially if the *warm Bath, and ſaponaceous, opiate clyſters, and gentle laxatives with Caſtor oil*, are directed immediately after; and if either *emetics*, or *purgatives* ſhould be adminiſtered, with a view to diſlodge the ſtone; they will be moſt ſafe and proper when the affected parts have been thus mollified and relaxed, and the ſpaſm abated by the preceding remedies: It is alſo here neceſſary to remark, that a grain or two of *opium*, with double the quantity of ſoap, will ſtay on the ſtomach when it can bear nothing fluid.

A *dangerous and prevailing error* is frequent among the common people who suppose every case of this kind to be a *colic*, and, for want of information respecting the true cause of such painful effects, unfortunately have immediate recourse to spirituous cordials, *ginger tea*, and the like, the preposterous use of which has been injurious to many: The intention may be good, but the consequence has often been *fatal*.

GENTLE laxatives are always proper in the cases already mentioned, of which an emulsion with Castor oil and manna seems the best; or fresh runnet whey rendered more solutive by damask-rose-leaves infused in it when hot, and to which, a sufficient quantity of manna may afterwards be added.

Whey reduced by evaporation to half its quantity, becomes more purgative and detersive, by increasing the proportion of its oily, mucilaginous, and saccharine part to the quantity of serum, and, thus prepared, is perhaps one of the most gentle laxatives in nature.

THE neutral salts are also proper; namely, *sal polychrest. tartar. solub. &c.* which have this good property, that having opened the bowels, they are not, like most other purgatives, followed by costiveness.

TO remedy the troublesome itching of the skin, occasioned by the *diffusion of bile through the blood*; the warm bath will be proper, and plentiful dilution with nitre, which will promot[illegible] discharge by the excretion of urine; the bow[illegible]hould be gently opened with castor oil; the almo[illegible]mulsion, with gum arabic and the addition of an opiate may likewise be given towards night when the symptoms are urgent.

IF in treating on diseases of the *Liver and Viscera*, I have dwelt long and particularly on such as proceed from *gall-stones*; it was because they more frequently occur than is generally imagined, and are every day mistaken for other diseases, to the great detriment of the patient's safety; for, since *they cannot be dissolved; it is from their expulsion only, he can reasonably hope for a cure:* If therefore, by

delay they acquire ſuch magnitude, as to render that impoſſible; all his future expectation of being perfectly reſtored to health, muſt end in diſappointment, and a *dropſy*, *conſumption*, or ſome lingering, and incurable, chronic malady will unavoidably follow.

SEVERE pains of the ſtomach and bowels may, indeed, happen from various cauſes already ſpecified, witho[…] the preſence of gall-ſtones or jaundice; but [...]re ſuch pains return at certain periods, as it were [...] fits, and are deeply ſeated near the pit of the ſtomach, towards the right ſide, and followed by a ſallow complexion, or yellow tincture of the ſkin; gall-ſtones are generally the cauſe; for in ſuch patients as voided them, theſe ſymptoms have been obſerved almoſt conſtantly and uniformly to ſucceed each other.

IT ſhould likewiſe be remarked, that where the patient had been long troubled with a ſenſe of weight and pain at his ſtomach, loathing of food, and frequent *ſickneſs after eating* attended with coſtiveneſs; there is the greateſt reaſon

reaſon to apprehend gall-ſtones, or *ſuch a viſcid ſtate of the bile as tends to produce them*; and therefore immediate recourſe ſhould be had to ſuch medicines, as tend to avoid the impending evil. If the conflagration cannot be extinguiſhed, ſhall not greater caution be uſed to prevent the kindling fire? In trifles, people are generally aſſiduous to preſerve their property; but reſpecting *health*, ſuch is the indolence, or it may be ſaid with more truth than ſeverity, the ſenſeleſs indifference of the human mind, that th[illegible]ue value of that ineſtimable bleſſing is ſeldom known, till it is either greatly injured, or irretrievably loſt!

FARINACEOUS vegetables, and thoſe of the aceſcent kind, ripe fruits, with pure, ſoft water for drink, ſhould chiefly conſtitute the food of thoſe ſubject to *bilious diſorders*; for, it has been obſerved that the natives of the eaſt Indies who live chiefly on rice, and drink water, are much leſs affected by ſuch diſorders than Europeans who indulge themſelves in the plentiful uſe of animal food, and drink fermented liquors.

IN all cafes where there is danger of gall-ftones, or when they have already been voided and a return of the fymptoms is to be feared; fuch regimen fhould be long and fteadily purfued, affifted by exercife on horfeback, and *alteratives of the mild, deobftruent kind*, which operate with the natural powers of the body, and without violence to the conftitution: In thofe who are much infeebled by gout, or other chronic difeafes, and unable to ufe exercife, it will be ferviceable frequently to agitate the region of the Liver with the hands, and to rub the affected parts with hot flannels, or a foft flefh-brufh; and to apply a thin bladder half filled with warm water to the fide.

AN *emetic*, or *fmart purgative*, fhould alfo occafionally be adminiftered; as their irritation will promote the fecretion and circulation of bile, and prevent its ftagnation in the gall-bladder where biliary concretions are generally formed: In the conclufion, the Bath waters, and thofe of Tunbridge, or Spa, and peruvian bark with fteel, will be proper to ftrengthen the general habit of body, and prevent the return of this formidable malady.

To recapitulate; whatever may be the *Diseases of the Viscera*, which interrupt or suspend their natural functions; if those vital parts are rather disordered, than broken down and destroyed; the Remedies already specified will be likely to remove them, and restore the patient to health; namely, the occasional use of alteratives, the mild, deobstruent power of lixiviated whey, soap clysters, and opiates, assisted by *Emetics*, *Electricity*, and *Exercise*; the various powers of which and manner of their action [illegible] the human body have already been explained, except the last, upon which I shall not here enlarge, its salutary effects being amply laid down in the last Section of this Essay.

AFTER diseases of the *Liver*, those of the *Spleen* are next in order; but the use of this organ being as yet imperfectly known, we are less able to understand or truly to investigate the diseases to which it is subject; except from such of its morbid appearances, after death, as are evident to the eye; namely, its preternatural *induration*, and *enlargement*, or its uncommon *diminution*: *But these may rather be regarded as symptoms, than proxi-*

mate

mate cauſes of the diſeaſe, which, conſidering our ignorance of the functions of this part, are often too remote for diſcovery.

THE *Spleen* or *Milt* is a blueiſh, ſpungy maſs ſituated in the abdomen, on the left ſide, between the large extremity of the ſtomach, and ſhort ribs; its figure is irregularly oval, convex next the ribs, ſomewhat concave on its ſide next the ſtomach, and about the ſize of a gooſe's egg, though its magnitude and figure is very different in different ſubjects.

IT is formed by a congeries of veſſels of every kind; namely, of arteries and veins, lymphatic veſſels, and ſome nerves; and although anatomiſts have ſought in vain for its *excretory duct*; it has notwithſtanding been conſidered by ſome as a *gland,* to which the lymphatic veſſels perform that office; and that they are even endowed with the power of *changing lymph into blood.*

THE Spleen, like the pulpy part of the liver, being ſparingly ſupplied with nerves, is not ſuſceptible of acute pain, and therefore ſeldom affect-

ed with inflammation; but being of a loose, spungy texture, and easily distended, it has sometimes been found enlarged to an incredible magnitude.

THIS organ is connected with the *stomach*, and also with the *pancreas*, by blood-vessels; and, together with the *omentum* and *mesentery*, sends a large quantity of blood to the *liver* for the secretion of bile; so that these parts have a free communication with each other, not only by the distribution of vessels, but the sympathy of their nerves.

THE human Spleen is not so cellular as that of quadrupeds, but, being extremely porous and delicate in its texture, may be compared to a fine spunge filled with blood, especially when the stomach, with which it is connected, is empty, for then it has been found large and turgid; but, on the contrary, it gradually becomes less and subsides, when its blood is pressed out by a full stomach; either from wind, or aliment which will occasion the *return of a large quantity to the Liver, for the secretion of bile*; consequently that fluid will be proportionate to the pressure of the stomach upon the

contiguous

contiguous Spleen, and the quantity of aliment to be digeſted, or in other words, to the exigency of its uſe.

FROM due attention to this circumſtance, I think it may, at leaſt, be deemed a reaſonable conjecture; that the *Spleen is ſubſervient to the Liver*, and that its principal uſe is to ſupply that organ with blood for the ſecretion of bile, as well as other important purpoſes. From this obſervation it will alſo appear, why thoſe who are ſubject to bilious complaints ſhould make ſparing meals; becauſe, when the ſtomach is overcharged with food; the bile will then overflow or be ſecreted in large quantity.

BUT if bile is eſſentially neceſſary to digeſtion, it may be aſked how digeſtion is effected, in animals, without a gall-bladder? In ſuch animals, there is notwithſtanding a plentiful ſecretion of bile in the liver, and a copious flow of that fluid into the inteſtines, by the *hepatic duct*, which anſwers the purpoſe of cyſtic bile, although not ſo bitter or exalted in quality.

SOME

SOME modern physiologists have ascribed to the *Spleen*, what the antients imputed to the liver, viz. *the property of preparing blood*, because red globules are said to have been found in its lymphatic vessels; and also because, in every animal having red blood, there is also a Spleen, and *vice versâ*; but this inference does not, especially in the first instance, seem just or conclusive; for, even allowing globules of red blood to be formed in the lymphatics of the *Spleen*, as asserted; it should then follow, that every *viscus* having lymphatic vessels, in which particles of red blood were also found, might, with equal propriety, be deemed an organ of sanguification.

THE use of the Spleen would, perhaps, be best determined, by attending to that morbid change of constitution occasioned by its being *diseased, or consequent of its total extirpation* from the body; for, since we find a very remarkable alteration in the constitution of a *castrato* deprived of the *testes*; there is reason to conclude, that a preternatural alteration of body may also proceed from extirpation of the Spleen: Agreeable to this conjecture, when the *Spleen* is diseased, the *body wastes*; and after

after its being cut out from that of a quadruped, the *liver becomes tumid, the ſecretion of bile is diminiſhed, and indigeſtion, flatulence, and pain of the ſtomach* are the conſequence.

THESE preceding facts lead, I think, to the following concluſion; that ſince from *extirpation*, or *diſeaſes of the Spleen*, the body declines in health, and both appetite and digeſtion afterwards fail; *this organ is ſubo[r]dinate to the liver in the ſecretion of bile*, a fluid eſſentially neceſſary, both in quantity and quality, towards the health and well-being of the animal ſyſtem.

IT is true, indeed, that very different offices have been aſcribed to the Spleen; but, ſuch is the diverſity of opinions, and ſome of them ſo vague, chimerical and oppoſite, that it may ſtill be doubted whether the uſe of the Spleen be yet perfectly known.

SOME ſuppoſed that the Spleen was the *ſeat of mirth*, and conveyed *atra bilis* or black bile (the cauſe of melancholy) to the ſtomach; others imagined that blood, by ſtagnating in the cells

cells of the Spleen, was rendered fitter for the preparation of bile; and others being disappointed in their researches as to its functions, trespassed so far on the design of provident Nature, as to suppose it had no use at all; because animals survived a long time when deprived of it; an opinion more absurd and unphilosophical than any of the rest: They might as well assert the *testes* are of no use, because *Eunuchs* can live without them.

THE *Spleen* being cellular, and as it were a fine, animal spunge full of vessels, may therefore be easily overcharged with blood, and become enormously bulky; innumerable instances of which may be found in writers of observations, especially among the antients. Those of lax fibres, and a bad habit of body, who have long laboured under ill health, are most subject to diseases of the Spleen, which are often attended with bleeding at the nose, ulcers in the legs, eruptions on the body and other symptoms of scurvy; and it may be necessary to add, that animals from which the Spleen has been cut out, are said to have become mangy, and gradually to waste in flesh and strength.

Dr.

Dr. Stukely mentions a young man who died in *St. Thomas's Hospital*, in whom the Spleen weighed five pounds and four ounces; and *Hildanus* gives the history of a woman's case, in whom the *Spleen and Liver* were become so bulky, that she was supposed to be with child: But the most extraordinary enlargement of this organ is mentioned by *Skenkius* in his Observations, where such was its incredible bulk, that it weighed twenty-three pounds: After these, it would be unnecessary to add farther instances of its preternatural magnitude; and as we have observed that the Spleen is probably subservient to the liver, in the preparation of bile; it may more easily be seen how that organ will become diseased, together with the Spleen, by sympathy or consent of parts.

Those affected with diseases of the *Spleen* have a sallow, cadaverous aspect, and are usually of a saturnine, melancholy disposition; hence the words *Spleen and Vapours* have been considered as synonymous terms: They feel a sense of weight on the left side, near the short ribs, especially after meals; attended with head-ache, loss of appetite, flatulence

lence and all the ſymptoms of indigeſtion, with exceſſive dejection of ſpirits: But, notwithſtanding what has been ſaid on the enlargement of the Spleen; caſes have not been wanting where, on the contrary, it has been found reduced in its natural bulk, and almoſt totally waſted.

FROM the ſtructure, and ſituation of the *Spleen, and its want of an excretory duct* common to other *glands*, its diſeaſes are more remote from the power of medicines, internally adminiſtered, than thoſe of the liver; but as it has a free communication, by means of its nerves and blood-veſſels, not only with that organ, but the *abdominal viſcera* in general; the ſame medical treatment will be proper; with the addition of ſuch external remedies locally applied as may prove ſerviceable in its obſtruction or enlargement.

WHEN ſuch diſeaſes reſiſt the long-continued uſe of alterative, deobſtruent medicines; *mercurial ointment* with the *hemlock poultice*, or one made with pulp of freſh briony root, may be applied to the affected part which ſhould be kept warm, and

frequently chafed with hot flannels which have received the fumes of *myrrh and gum copal* thrown upon hot coals, contained in a warming-pan, upon the lid of which the double flannels may be placed.

An *Emetic* will now and then be proper to agitate the ſtomach which, by its *contiguity with the Spleen*, and the efforts of vomiting, may tend to open obſtructions, and promote the diſcharge of that accumulated blood which is ſo apt to ſtagnate in its cells, when the ſtomach remains inactive and long empty, or is expoſed to exceſſive cold; eſpecially when there is not ſufficient exerciſe to render it fluid.

It will alſo be neceſſary to keep the bowels laxative, and promote the ſecretion of urine, which may be effectually done by *lixiviated whey with manna*, and occaſionally giving nitre in weak broth or common drink. *Sal ſodæ phoſphorat.* in the quantity of one ounce diſſolved in a pint of weak veal-broth, or beef-tea, is alſo an elegant and gentle purgative, and leſs offenſive to the taſte or ſtomach than any other purgative

ſalt

ſalt I know: The method of its preparation, and peculiar qualities, as a cathartic differing from the *ſal ſodæ*, were firſt mentioned by my ingenious friend Dr. *Pearſon* phyſician to *St. George's Hoſpital*, and may be found in Dr. *Duncan's Medical Commentary*, vol. xiii. p. 405: It is only a tribute due to merit, to ſay, that they both may be numbered among the firſt of thoſe who teach the *Science of Phyſic* upon rational principles, and practiſe it with the conſcientious feelings of honeſt men.

In morbid affections of the *Spleen*, the patient has been obſerved to have a copious diſcharge of *urine*, and *ſaliva*, both which are manifeſt ſigns of *obſtructed perſpiration*: Vomiting of blood is not an uncommon ſymptom in ſuch caſes; and the *bleeding piles* have generally been attended with relief. The method of cure is ſo ſimilar to that already laid down in *hepatic diſeaſes*, that it is not neceſſary to ſpecify their difference. In general, thoſe medicines which *promote a free diſtribution of blood through the viſcera, and increaſe perſpiration, are the moſt likely to afford relief*; and as in all caſes of general obſtruction, thoſe of the

mild, alterative kind, with exercise, will also here be proper. In the conclusion, after the fulness and sense of weight in the affected part are removed; peruvian bark, steel or the chalybeate waters of *Islington*, *Tunbridge*, and *Spa*, with the cold bath, will be necessary to finish the cure and prevent a relapse.

THE patient, during the use of these medicines, should breathe a dry, pure air, and constantly ride on horseback; for, such exercise by gently agitating the whole abdominal viscera, and promoting a free circulation, will greatly assist in the cure of all diseases proceeding from obstruction.

ABOUT four years ago, a gentleman of middle age, and bilious constitution, complained of an indolent, deep-seated pain in his left side, apparently in the *Spleen*, with which he had been affected for upwards of two years, especially in the winter-season, after late hours, or the least cold. He had taken many medicines, without much relief. I directed him the remedies already mentioned, and a pill to be taken every night,

night, with *sulph. præcip. antimon.* three grains, *calomel* two grains, well triturated together, with the addition of half a grain of *opium*: Half a pint of the strong decoction of *taraxacum* was also taken twice a day. I advised him to wear flannel under his shirt and to use exercise on horseback. By the use of those medicines, which he took by intervals, about seven weeks, he was free from pain, and has since remained in health, without any return of his complaint.

THE structure of the *Omentum* having been explained, and its unusual *extenuation or defect of fat* remarked as a cause of visceral disease, at p. 189; the following extraordinary case, for which I am indebted to a medical friend, might more properly have there been mentioned as an instance of the opposite extreme, namely, its *preternatural accumulation*; but, as it may be a caution for others to avoid the causes by which this uncommon disease was evidently produced, I cannot here omit the recital of it.

Case of diseased Omentum, and Mesentery.

THE life of the patient was sedentary from his earliest youth: At school, during the hours of play, his time was spent in his father's study in close application to the languages; so much that his attention was lost to almost every other matter. This way of life was probably the cause that, at the age of fourteen, he was reduced to a very emaciated state, attended with night-sweats, *bleeding at the nose*, upon the least exertion, and frequently, while in a *leaning posture* over his books, which continued to a very alarming degree. Relaxation from study, gentle exercise, better air than that of a large town where he then lived, milk diet, and proper medicines relieved him at that time from his declining state, and he enjoyed tolerable health and good spirits till near twenty, when he resided in London; but immoderate application to his favourite studies, business and its confinement, again brought on his old complaints, with the addition of a violent cough as well as night-sweats, and in the day-time, immoderate perspiration upon the least motion, though in the winter-season.

These

These symptoms and an almost continual hectic fever reduced him to a shadow and the weakness of an infant; nevertheless the bark, change of air, gentle exercise, and milk diet once more restored him, and he again enjoyed health and spirits till within a few months of his death. He had accustomed himself for some years before to drink *large draughts of small, cold liquors*; took very little regular exercise, but sometimes indulged himself in very long walks, of twenty or thirty miles in a day, confining himself as usual, closely to business or study.

SOME time in the month of April, 1785, after walking fifteen or twenty miles hastily, and in danger of being benighted, he was seised with a pain on the left side, a little below the short ribs, which affected his breath and prevented his standing upright; but which he thought so little of as not to apply for medical assistance; but sought his remedy in abstinence, small drink, and rest in bed which in some measure relieved but did not entirely remove his pain.

EARLY in the month of June, the part, lately the feat of pain, began to grow hard to the touch, and very foon increafed to nearly double the fize of a hen's egg, not equally nor projecting, but in fome parts very hard, yet without the leaft pain, even when preffed by the finger. He fufpected no ferious confequences, in its beginning, or progreffive enlargement which was now rapid, till he began to have frequent *fpafms* in the left thigh upon walking.

JUNE 22, Dr. *B.* who had prefcribed for him, wifhed him to fee a furgeon, and the late Mr. *Pott* vifited him, but gave him up entirely to the phyfician: The plan then recommended was, fmall dofes of *Mercur. dulc.* every night, with tonic medicines, and occafionally gentle purges.

JUNE 26. Another phyfician was called in confultation, and perfeverance in the prefent plan was recommended: He began now to be almoft incapable of walking from an attack of violent cramp or fpafm, about the middle of the left thigh,

thigh, which increaſed in frequency and violence daily, inſomuch that he could not turn in his bed. Various embrocations, volatiles, and opiates, were applied without the leaſt benefit; one, with a ſtrong ſolution of camphor, he thought increaſed his pain; but that with a ſolution of opium ſeemed to afford him ſome little eaſe.

A VARIETY of internal medicines were tried without the ſmalleſt good effect; the tumour by this time had extended itſelf lower than the *umbilicus*, and acroſs the right ſide. The left leg now began to be œdematous round the ancle: Worn out with pain, he ſeemed inclined to try his native air, and went into *Berkſhire* July the 23d. He bore the journey (40 miles) much better than was expected; but the ſpaſms in the thigh became ſo excruciating upon motion, or on attempting to lie down, that he was forbid the comfort of his bed for near three weeks while he was in the country, during which the dropſical ſwelling in the leg increaſed, till not only that, but the thigh to the belly, was much loaded. At *Reading*, by

by direction of Dr. *T.* the *extract. cicutæ* was given in large doses three times a day, but without any apparent advantage.

AUGUST 13, he returned to town, disappointed in his hopes from the air; and, being now much swelled in the belly, in full assurance of relief from being tapped. The right leg, from great pressure of the tumour above, began to be much distended, as well as the *parietes of the abdomen*, which was enormously enlarged. During the whole progress of the disease, he passed very little urine; and at this time hardly any. About the middle of August, the spasms of the thigh nearly left him; but even when they had been most violent, he always found much relief from the application of cold, and many nights sat almost naked for ease.

AFTER his return to town, some medical consultations were held upon his case, but to no purpose. *Opiates*, the dernier resource for pain, had been gradually increased, till he took 70 or 80 drops of the *tinct. theb.* three or four times a day, and *tinct. cantharid.* two ounces a day, with design

design to increase the secretion of urine. The bowels were equally inactive as the kidneys, for, he seldom had any evacuation except from art, which was often attended with a tormenting *tenesmus*. The last few days of his life, he on a sudden, after leaving off all medicines, *passed a great quantity of urine*, three or four times in the twenty-four hours. It would be useless to enumerate the several medicines used during his illness; it is sufficient to say, that those of the most active kind, and all that experience or judgement could suggest, were most assiduously applied, without any diminution of the size of the abdomen, till September 29, when he died.

ON *Dissection*, the right umbilical region being punctured by a trochar, there was a discharge of a thick, sanious fluid in the quantity of a half a pint. Upon the removal of the abdominal integuments, a very *large unequal tumour* presented itself, occupying chiefly the left *hypochondrium*, extending upwards as high as the stomach, and downwards as low as the bladder. Its surface was covered with extravasated blood, especially on its anterior, prominent

minent part, where it was not unlike an ulcerated ſore, diſcharging ichorous matter. The ſuperior part of the tumour was formed by the *Omentum*, very conſiderably enlarged and *replete with fat*, and adhering to all the contiguous parts. This being removed, the *diſeaſed meſentery* appeared, *which was become an indurated maſs of a large ſize, weighing twelve pounds:* The *colon* and inteſtines were become of a livid colour. The right kidney was natural as to ſize and ſhape, but the *left* had entirely loſt all appearance of its uſual form, and was almoſt totally waſted.

THE ſtomach, pancreas, and ſpleen, appeared ſound, but the two latter were ſomewhat ſmaller than uſual. The liver had no preternatural appearance. The urinary bladder was *thick and contracted:* The contents of the *thorax*, as to ſituation and appearance, were natural, except ſome few adheſions of the lungs to the *pleura*, and the heart being ſmaller than uſual.

September 29, 1785.

THIS

THIS ſingular caſe tends to illuſtrate and confirm ſeveral obſervations in the preceding part of this Eſſay; particularly, the inconvenience of a ſedentary, ſtudious life; the danger of drinking cold liquors when the blood is heated by exerciſe; and the great injury to health, by ſitting conſtantly in a half-double poſition of the body, by which the abdominal *viſcera ſuſtain almoſt its whole weight, and being violently compreſſed, the circulation of blood through their veſſels is obſtructed, and the ſeveral ſecretions, and excretions neceſſary to life, impeded or ſuppreſſed.*

THE caſe of the late *Sir Joſhua Reynolds* is another inſtance of the bad conſequence of an *inflected poſition* of the body, to which his occupation conſtantly ſubjected him; for, on diſſection, the *liver* was ſo enormouſly enlarged as to weigh *ſeveral pounds.*

SECT.

SECT. VIII.

Diseases of the Kidneys, the Bladder, and urinary Passage; viz. Strangury, Obstruction, and Incontinence of Urine; with the most effectual Means of their Cure. — Of the Gravel, and Stone, with a brief enumeration of the Medicines recommended as Solvents, *and a comparative view of their efficacy and solvent power: Also occasional observations on the* salutary effect of sparry water; *and on the* New Theory *respecting the formation, composition, and cure of the stone; with general inferences from the whole.*

IN this Section are contained such useful, and interesting, practical facts, as may enable the Reader to judge of the nature, and degree, as well as the relief, and cure of diseases affecting the *Bladder and urinary Passage*; more especially those which proceed from the *Gravel, and Stone*, being the most distressing of all human maladies; for, while the patient's body is worn out with pain, his mind is alternately agitated with hope and

and fear which exhaust his spirits and weaken the powers of both; at one time, confiding in medicines called *solvents*; at another, despairing of their efficacy, and dreading *Lithotomy* as his last resource,—the most painful, and precarious of all surgical operations.

BEFORE we proceed farther, it is necessary to take a concise view of the *urinary Passages* or affected parts; but so far only as it may be requisite to afford the Reader an idea of their structure and situation; as the extent of this Essay, of which, the present subject only makes a part, will not allow of more.

The *urinary Passage* commences at the Kidneys, and is extended through their ducts, called *ureters*, into the Bladder; and thence to the extremity of its canal called *urethra*, where it terminates.

THE *Kidneys* are two small glandular bodies placed in the posterior part of the abdominal cavity, and are intended to secrete or strain off urine from the mass of blood: Each Kidney appears to be

be a congeries of blood-veſſels which ramify minutely through its ſubſtance; of lymphatic veſſels, and ſome ſmall nerves: They receive their blood from the emulgent artery which divides and ſubdivides into branches infinitely ſmall, till they approach near the centre of the Kidney, where they converge, and being collected into parcels covered with a fine membrane, they form ſeveral *ſmall cones* or nipples, at the points of which their orifices open, and as ſo many filtrating tubes, ſtrain off urine, which tranſudes from the points of each cone, and drops into a ſmall membranous cell or funnel called the *pelvis* of the Kidney: From this cavity the *ureter* originates, which is a ſlender pipe, of unequal diameters, about the ſize of a common quill, and is compoſed of a thick *nervous membrane* internally beſet with ſmall glands, which ſecrete *mucus* to defend it from the acrimony of urine continually paſſing through it from the Kidney to the Bladder; into which it does not directly open, but *runs obliquely between its coats*, and in the ſame direction as that of the gall-duct, where it opens into the *duodenum*; as has been already deſcribed in ſpeaking of the Liver.

THE

THE *Bladder* or receptacle of urine is placed at the bottom of the abdomen, within the bones of the pelvis, and is composed of three coats; the first being *membranous* derived from the peritonæum which connects it to the intestine called *rectum*; the second is *muscular* and made up of fibres intricately disposed and running in various directions: The inner coat is *nervous*, and, like each ureter, supplied with glands which secrete mucus to defend this sensible part from the sharpness of urine. The *Bladder* is amply supplied with arteries, veins, and nerves: It has three orifices, two of which are made by the *ureters* which bring urine into its cavity from the kidneys; and at its neck is placed the third orifice for the discharge of that fluid through the *urethra*, where also is a small muscle consisting of circular fibres, called *sphincter* which by its contraction, prevents the involuntary discharge of urine.

DISEASES of the Bladder, and urinary Passage may proceed from a *fault in the original structure of their parts*; the *effects peculiar to old age*; *external violence*; from *irritation of Gravel and Stone*; or,

or, what is more frequent, from *old, venereal reliques*, or the means to remove them by acrid, and astringent injections, irritating bougies, or other pernicious applications.

A long and painful *retention of urine*; the *sudden suppression of bleeding piles*; the *immoderate use of mercury, turpentine, or spanish flies*; and the deposition of *sharp, scorbutic salts* upon the Bladder, or a *translation of febrile matter to that organ*; by exciting pain and inflammation, have all been observed to injure the urinary Passages; so that some of their diseases are *local*; while others may be considered as *symptomatic* or *adventitious*, proceeding from a fault of the general constitution.

ORGANICAL diseases, from a preternatural conformation of the Bladder or its contiguous parts, not being frequent, and seldom admitting of cure without surgical treatment, do not here require consideration; and although such as are the effect of advanced age, may not be wholly removed, they will, nevertheless, admit of relief, to the great comfort of the patient.

Strangury

Strangury and Obſtruction of Urine are often the conſequence of *inveterate gonorrhœas* frequently contracted, and imperfectly cured; eſpecially thoſe which creep up the urethra and reach the proſtate gland, or neck of the Bladder; ſuch affections being attended with ſo much pain and inflammation, as to bring on *ulcers*, *ſtrictures*, and *caruncles*; or even an *enlargement of the proſtate gland*, which, by compreſſing the *urethra* may occaſion an obſtruction of urine. The unſeaſonable uſe of *aſtringent injections* which ſhrink up the tender lining of the urinary canal, and lock up the *virus*, or thoſe of the acrid kind which inflame it; alſo the frequent introduction of *irritating bougies*, or too much violence uſed to force a paſſage into the bladder, have all done great harm which might have been avoided by more gentle treatment, and the previous uſe of the lancet, emollient, opiate clyſters, and the warm bath.

As to the ſpecific qualities attributed to particular injections, bougies and the like; it may be remarked, that the milder their compoſition, the more beneficially they will act; for, ſuch is the ſenſibility of the fine, nervous lining of the *ure-*

thra, that even milk thrown up with violence will painfully affect it; and as to bougies, ſince they act by their gentle preſſure, and not by a ſpecific power, ſuch as are made ſimply of oil and wax are the beſt; for, even theſe will ſtimulate ſo much as to bring on a copious diſcharge of mucus. If it is introduced too large, it will create violent pain by the over-diſtenſion of the part, and defeat its own purpoſe; and it is neceſſary to obſerve, that the reſiſtance which it always meets with from the proſtate gland, even in a ſound ſtate, has often been *miſtaken for a ſtricture* or morbid cauſe.

THE method of treating an *obſtruction of urine* muſt be varied according to the cauſes by which it is produced: If it ariſes from any violence creating local pain and inflammation which ſhut up the urinary paſſage, bleeding and laxatives will be proper; after which an anodyne emulſion, or linſeed-tea may be given for common drink: an emollient clyſter with mallow-leaves boiled in milk may alſo be adminiſtered, and for nouriſhment the patient may take veal-broth, with nitre, or ſmall quantities of any ſimple food void of ſeaſoning.

THE

THE warm bath may likewiſe be uſed; but if the ſymptoms do not ſpeedily give way to ſuch treatment, the urine ſhould be drawn off by the *catheter* without delay; for whilſt it continues to collect in the bladder, and cannot be evacuated, relief from any other method would be expected in vain. However, it may be laid down as a general rule that all diſeaſes of this part proceeding from *gravel*, or a *ſcorbutic*, groſs habit of body, can only be remedied by ſuch diet and medicines as are proper in thoſe diſorders, and reſtore the blood to its natural ſtate.

Incontinence of urine or a want of power to retain it the uſual time, often ariſes from debility and weakneſs of the ſphincter-muſcle which naturally contracts the neck of the Bladder and cloſes its orifice; it may alſo happen from the paſſing of a large ſtone which has ſo much dilated its orifice, that the urine involuntarily eſcapes; or from an *ulcer* which has eroded and partially deſtroyed the urinary canal; and however contradictory it may appear; a long, and painful retention of urine, by over-ſtraining the fibres of the Bladder, may ſo weaken its retentive power, as to

to produce the contrary extreme, and at laſt occaſion its *involuntary diſcharge*, or ſometimes, even a total ſuppreſſion.

THE urethra in females being much ſhorter and dilatable than in males, affords an eaſier paſſage for a ſtone from the bladder; but if it is large, a temporary incontinence of urine is often the conſequence. I was called in haſte, to a Lady in *South Audl[illegible]-ſtreet*, who laboured under a total obſtruction of urine, and as I found ſhe had been *ſubject to Gravel*, there was the greater reaſon to ſuppoſe her diſorder proceeded from ſabulous matter, or a Stone lodged in the neck of the bladder: The pain was excruciating, and her efforts to paſs water repeated and violent, but in vain: A large quantity of urine was drawn off by the *catheter*; after which ſhe became eaſy, and by the uſe of emollient injections, and plentiful dilution, before a warm bath could be prepared, ſhe voided a ſmooth Stone, about the ſize of a horſe-bean, and has ſince remained in good health.

THE

THE celebrated *Tycho Brahe* attending the Emperor of Germany in a coach, and retaining his urine too long, forfeited his life to his falſe delicacy.

IF *Incontinence of urine* ariſes ſimply from weakneſs and relaxation of the parts; a ſtrong infuſion of peruvian bark may be taken in quantity of a tea-cup full twice a day. Jellies, and nouriſhing diet are proper; the patient ſhould drink Pyrmont, Tunbridge, or Iſlington waters, and make uſe of the cold bath at the ſame time.

ON the contrary, *urine* too long retained, or unduly ſecreted may prove hurtful both by its quantity and quality; the firſt will deſtroy the tone of the bladder; and when by heat, or long ſtagnation, its ſalts, and oil, are become highly acrimonious, they may erode its internal coat, and occaſion *ſtrangury*, *inflammation* and *ulceration*; or being retained in the blood, and falling upon the brain, may produce fever, delirium, or death.

THE expulſive force as well as retention of the urinary Bladder will be proportionate to its capacity and the elaſticity of its fibres. At an *advanced period of life*, the fibres are more rigid and compact than in young ſubjects; and being alſo now leſs elaſtic; its power of retention, as well as its expulſive faculty will be conſiderably impaired; conſequently, the patient will have a more frequent inclination to paſs urine than before, and leſs ability to effect it.

THERE is alſo another mechanical change in the general habit brought on by age, not uſually remarked, which will add to the former malady; viz. all the parts of animal bodies being much *leſs vaſcular in old age*, than in youth; in the firſt, the ſkin will become more compact and imperſpirable; conſequently, as the leſſening of one diſcharge tends to increaſe another, in order to preſerve a due balance between the ſolids and fluids; a larger portion of perſpirable matter ought to be carried off by urine to compenſate for the defect of perſpiration; but here it is directly the contrary; for, as the fine urinary tubes of the

the kidneys muſt participate of the general effect of age, and being now *leſs vaſcular and more contracted*, they cannot ſo freely tranſmit urine as before; ſo that the perſpirable fluid will become redundant; and, being increaſed from intemperance, taking cold, or other accidental cauſes, may bring on a bloated habit of body, followed by *difficulty of breathing, ſwelled legs, or dropſy.*

IN this ſtate of the conſtitution, aliment of the fluid kind is moſt proper; with ſuch things as relax the ſolids, and as it were lubricate and mollify their rigid fibres: Of this kind is the warm bath, flannel, or *fleecy hoſiery* worn next the ſkin, broths ſlowly prepared, milk diet, thin chocolate, and the plentiful uſe of aſs's milk, or emulſions with manna and nitre, which are not only balmy to the urinary paſſage, but will pervade and ſoften the contracted urinary tubes, and alſo keep the bowels gently open.

AN *Ulcer of the Bladder* is a diſorder of the moſt diſtreſſing kind, and extremely difficult of cure; eſpecially in bad conſtitutions where the patient is

far

far advanced in years; for, the bladder being constantly either filling with urine, or contracting for its expulsion, the parts do not remain long enough in a state of rest, to recover the injury sustained, or allow the sore to heal. The same general causes as those producing pain and inflammation, sometimes terminate in an *ulcer*; hence too much caution cannot be used, in disorders of this kind, even when at first apparently slight; for, many instances migh be brought to shew their unfortunate event, when long neglected.

WHEN this disease arises from scorbutic acrimony, or a bad state of the blood, it is generally inconsiderable in the beginning, commencing with a sense of heat, and indolent pain at the lower part of the belly, but at length is attended with *strangury* or frequent endeavour to make water. The urine is not only voided with difficulty, in small quantities, but mixed with mucus, and sometimes with blood and matter.—I attended a Lady, who, by a fall from her horse, was thus affected for several months, but at last entirely recovered.

THE

THE like methods and medicines are here proper, as thoſe mentioned in a painful ſuppreſſion of urine. The almond emulſion, or a ſolution of gum arabic in lime-water, with a third part milk, may be taken for common drink, and the patient ſhould abſtain from wine and fermented liquors. If the body is coſtive, half a pint of freſh new-milk whey, ſweetened with manna, will be proper to remedy that inconvenience.

BALSAMS of the terebinthinate kind, commonly uſed in the early ſtate of this diſeaſe before the inflammation is abated and the ulcer diſpoſed to heal, have been found to exaſperate the diſeaſe by their heating quality.

THE patient ſhould confine himſelf to a light, abſtemious diet of milk, vegetables, honey, and ripe fruits; with a little animal food, jellies, or veal-broth by turns. He ſhould abſtain from things ſalt and high-ſeaſoned; from muſtard, pepper, &c. and alſo from tarts or acid liquors. Aſs's milk with Briſtol water and goat's whey, or Seltzer

water

water and milk, are proper; alſo a ſtrong decoction of ſarſaparilla, in the quantity of half a pint, twice a day.

WHEN the pain and irritation are violent, an opiate clyſter made with the decoction of three or four white poppy-heads, and elder-flowers, may be injected milk-warm, which will cheriſh the affected parts, aſſwage pain, and produce the effect of an internal fomentation.

Diſeaſes of the Bladder and urinary Paſſages proceeding from *Gravel and Stone* are ſo ſlight in their beginning, that, like moſt others, they are then diſregarded; although that is the time when many of thoſe grievous ſymptoms which afterwards afflict the patient, and often put a period to his life, might be prevented, by medicines which would deſtroy the ſlight union of the gravelly particles and *carry them out of the body, before they ſo ſtrongly cohere, as to form a ſtone,* on which they would afterwards have little effect: This obſervation is of the utmoſt conſequence to all thoſe who ſpring from nephritic parents, and whoſe

whoſe complaints are *hereditary.—Sudden death is horrible to human feeling; but thoſe things which certainly kill by degrees, paſs unregarded!*

THAT the rudiments of a ſtone pre-exiſt in urine, even in the moſt healthy conſtitution, will hereafter be evident; but why thoſe *calcarious molliculæ* have ſo ſtrong a tendency to unite and cohere in ſome; and in others never coaleſce or concrete at all, but are diſcharged in the urine, without injury, it is difficult to determine: There muſt be an exiſting cauſe; but who ſhall find it out?

THE cauſes of many other diſeaſes are equally obſcure: What know we, except from its effect, of the deadly nature and eſſence of that poiſon concealed in the ſaliva of a mad dog; or why it almoſt uniformly produces in the patient a *dread of water*; and then in four or five days deſtroys him, after lying dormant and inactive in his conſtitution as many years? By what peculiar power do the *Gout*, *venereal Lues*, and *cancerous matter* produce their various ſymptoms, according to the ſpecific difference of their ſeveral cauſes? and what is the nature of the *Plica polonica* which occaſions the

the hair to become bulbous, to twiſt and ſwell, and inſtead of its proper juices to tranſmit blood, with exquiſite torture? Our enquiries are involved in the ſame obſcurity when we endeavour to diſcover the cauſe of *Diabetes* or immoderate and preternatural flux of urine, ſo often incurable; and why, contrary to its natural quality, it ſhould, in this diſeaſe, contain a large portion of ſaccharine matter or *real Sugar*, even to the quantity of one ounce, in a pound of that fluid. The cauſes of *magnetiſm, or properties of the ſenſitive plant*, may, perhaps, be as eaſily found out. The morbid appearances of the parts, after death, oftener preſent us with the effects, than the proximate cauſes of diſeaſes.

Stones or concretions have not only been found in the kidneys, urinary Bladder, and receptacle of bile, but almoſt in every part of the human body: By diſſection, they have been diſcovered in the *pancreas*, and *ſpleen*; alſo in the joints of thoſe inveterately affected with *gout*; tubercles or ſtony concretions have been coughed up from the lungs of conſumptive patients: They have

have been found in the *tonſil, and proſtate glands*; and ſometimes even in the brain and heart; as appears by the caſe of the Emperor Maximilian II. who had been afflicted with gout, and in whoſe heart were found ſeveral ſtony concretions. That vaſcular cake called *placenta* which ſerves as a medium of intercourſe between the mother and *fœtus in utero*, has been beſet with theſe extraneous productions, and inſtances may be ſeen in practical writers where ſtones have alſo been found in the kidneys of *new born infants*.

THE progeny is known to inherit the *ſtamina* of the parent original, as much as ſimilitude of feature, complexion, or natural temperament, which entail on each individual a *periſhable or permanent tendency*; and this is particularly exemplified in *conſumption, and ſcrophulous diſeaſes*.

ACCURATE and repeated obſervations tend to prove that the nature and quality of animal fluids depend more upon their ſecreting organs, than the fluids from which they are ſtrained off; and

conſequently

consequently Gravel, like the Gout, is often a disease manifestly *hereditary*, and may proceed from a *vitiated construction of the kidneys, derived from the parent*; a defect, therefore, in the function of those organs may dispose them to form concretions, or in other words to favour the union of stony particles.

THAT the nature of fluids depends chiefly upon the strainers through which they pass, is evident in *vegetables*, where plants placed in the same vessel of water, will, by a kind of elective power, prepare juices of different qualities, according to the specific difference and peculiar disposition of their several strainers; and this faculty inherent in the stamina of animals and vegetables, if we may reason from analogy, is farther illustrated in grafting the branches of one tree into the stem of another; for, the juices of the last, will thence be so far divested of their natural qualities, by passing through different strainers, as only to produce the same kind of fruit, with that of the tree from which such ingrafted branches were taken.

ALL

ALL water is more or leſs impregnated with earthy particles, and being largely and frequently admitted into the animal body; whilſt its ſeveral organs are vigorous and preſerve their due energy, ſo long ſuch rigid particles will be tranſmitted through their ſtrainers and carried out of the body; eſpecially, by the excretion of urine; but if on the contrary, their natural power is impaired by age, or chronic weakneſs; ſuch ſtony particles will then be retained in the habit, and not being ſubdued, but remaining unchanged and invincibly the ſame, will coaleſce and unite by ſimple attraction, and form Gravel in the Kidneys, Stone in the Bladder, and calculous concretions in the joints; all which, from examination, appear to be ſimilar; ſo that the *Gout and Gravel may juſtly be deemed diſeaſes nearly allied to each other.*

THE principles or rudiments of a ſtone, therefore, pre-exiſt in the urine of every individual whether healthy or otherwiſe; with this particular difference, that where the vital power of the kidneys is wanting, and conſequently, where they are *ſuffered to ſeparate from it, and concrete; gravelly mat-*

ter is then formed: But, on the contrary, when they are conſtantly expelled, in perfect union with the urine, no bad conſequence enſues.

IN confirmation of this circumſtance; the ſudden ſeparation, and concretion of this ſabulous matter in freſh-made urine, ſo remarkable in ſome individuals, is the *moſt certain and unerring indication of a ſtrong tendency to Gravel and Stone, and often proceeds from an hereditary cauſe* or natural defect in the function of the kidneys, peculiar to ſuch individuals; although, upon diſſection and examination of the organical ſtructure in thoſe parts, this cauſe would, perhaps, be as little evident, as that of *ſcrophula*, or *hereditary inſanity*.

THAT Stones are formed by accretion or the ſimple attraction of earthy particles to a *nucleus* or ſolid, indiſſoluble baſis has been proved by an experiment of the celebrated *Nuck* who, through an inciſion into the bladder of a living dog, introduced a ſmall wooden button, where it was ſuffered to remain for ſeveral weeks, and after killing

killing the animal, being then extracted, was found covered with a cruſt or ſhell conſiſting of *ſtony matter*.

THIS diſpoſition to form *calculi* is farther aſſiſted, by the preternatural ſecretion of that *animal glue* proceeding from the mucous glands, with which all the urinary paſſages are naturally ſupplied from their origin to their termination; to defend them from the acrimony of urine; and which will always be ſecreted in quantity proportionate to the ſtimulus applied to their internal, nervous lining, beſet with thoſe *glands*: This *mucus is always a conſequence, but never the cauſe of Gravel or Stone*, otherwiſe than as it may contribute to cement, and bind their particles together. — I have ſeen ſuch animal glue, conſtantly diſcharged with Gravel, and being found with it in urine it has falſely been deemed the cauſe of a Stone, and often *miſtaken for purulent matter*; the marks of diſtinction between which will hereafter be ſpecified, and pointed out.

WANT of due exerciſe, or inaction of body, diſpoſes it to *Gravel*: This cauſe is manifeſt in thoſe ſubject to fits of gout, and in rickety

children; or when by fractures, or other violent injuries, the patient is long confined in bed, lying on the back, a position which compresses and inflames the kidneys, and prevents the secretion of urine.

THE constant use of *hard, spring-water* impregnated with stony particles, has also been supposed the frequent cause of Gravel and Stone, and indeed, at first, with appearance of reason; but on examination of facts relative to this subject, however extraordinary it may seem; experience shews, that hard, spring-water in which calcarious earth most abounds, is not more apt to generate Gravel in the Kidneys than that which is more soft and pure, but on the contrary, has been found *beneficial*. — In *Holland*, no hard waters can be drank, but on the contrary, from the nature of soil and situation, those which are soft and muddy; yet Stone in the bladder is there more frequent than in other places. — Those who have constantly drank distilled water, by way of prevention, have nevertheless been subject to Gravel.

Bartholine informs us that when *Olaus Borrichius* visited the dreadful cavern of *Okey hole*, he was amazed at the pendulous *striæ* on its roof which had been formed by the constant dripping of clear, insipid water; and enquired of the inhabitants, who constantly drank it, whether they were subject to Stone and Gravel: He was answered, that they were *much less afflicted with Stone than any other people in England; and that this water not only effectually cured the strangury, but powerfully expelled both Stone and Gravel*; a circumstance which is confirmed in the first volume of *Boerhaave's Chemistry*.

THIS opinion is also supported by a comparative view of the number of patients cut for the stone in the several county-hospitals of England, according to reports made by the different physicians, and surgeons of those hospitals, with a view to discover such disposition to Gravel and Stone as might proceed from the qualities of water, situation, and manner of living peculiar to each; but it was concluded from these reports; that although it appeared the stone prevailed more in some places than others; it nevertheless is confessed, that

this difference cannot be ſatisfactorily accounted for, either from the qualities of water, the nature of food, or of local ſituation; and therefore is to be referred to other cauſes.

THAT the *nephritic cauſe* often proceeds from an *hereditary diſpoſition*, and is inherent in the conſtitution, I think, there can be little doubt; when we conſider, that ſimilitude of bodily frame, complexion, and natural temperament are all derived from the ſame ſource.

IN farther confirmation of the preceding facts, I ſhall tranſcribe the following remark, from *Dr. Dobſon's* Commentary on *fixed Air*.

"IT is to be obſerved that the *pump-waters of Mancheſter are remarkably hard*; and yet this town has ſent only twelve Stone patients to the Hoſpital, during a courſe of twenty-ſix years; while Sheffield, which Mr. *Wooffendall* informs me, is wholly ſupplied with *very ſoft water* from an open reſervoir at ſome diſtance from the town, has, in ſix years, ſent eight patients to the Mancheſter Hoſpital."

ALTHOUGH

ALTHOUGH ſtony particles attach themſelves to all indiſſoluble, ſolid ſubſtances; there is not any body to which they ſo ſtrongly adhere as to ſtone itſelf, or thoſe of their own nature; as therefore it is allowed that a ſtone in the kidneys, however ſmall, by remaining too long there, may form a *nucleus* by attracting the ſtony particles of urine; upon the ſame principle, and by parity of reaſoning, the hard, *ſparry water* of Knareſborough and that of the Caroline Spa, &c. may become beneficial to thoſe affected with *Gravel*; for, thoſe waters being ſtrongly impregnated with calcarious earth or ſparry matter, with which, as appears by their tranſparency, they intimately combine; it may be conceived, that ſuch waters, in paſſing copiouſly through the kidneys, will more powerfully attract the ſtony particles of urine, with which they have affinity, then ſuch particles attract each other; and, that in union with them, and by their gentle ſtimulus upon the kidneys, they will thus ſolicit their own diſcharge: This ſuppoſition founded on the univerſal law of attraction, is farther illuſtrated by the proceſs of *petrifaction* in porous bodies, through

which petrifying water is freely tranſmitted, while its ſtony particles, by the power of attraction in ſuch bodies, are arreſted and left behind.

BUT whether this be their manner of acting, is not material, nor ſhall I contend it is preciſely ſuch; the main queſtion will be, whether *ſparry waters* (as the preceding circumſtances tend to prove) are, in reality, productive of good effects or not? and as this is a circumſtance of importance to thoſe afflicted with Gravel and Stone, and an opinion ſomewhat new and extraordinary; it deſerves to be examined with attention; but chiefly, by repeated, practical facts and accurate, unbiaſſed obſervation, to be confirmed or controverted.

WE have ſo far examined the ſtate and condition of the human body; the origin and nature of Gravel, and component parts of the Stone, with their ſeveral ſymptoms, according to the theory of *nephritic diſeaſes*, adopted by Authors of the firſt eminence; but, as it muſt be confeſſed, notwithſtanding great improvements in medical ſcience, that our knowledge is ſtill imperfect, re-

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ſpecting a ſafe and effectual ſolvent for the Stone; as appears by the great number who unfortunately are obliged to ſubmit to the operation of cutting; it ſhould be the conduct of every unprejudiced mind, to regard with attention and candour, all ſuch hints, and new obſervations communicated by men of credit and ſcience, as bid fair to be uſeful.

ALMOST infinite is the number of authors on the ſubject of *Gravel and Stone*; but, with an intelligent and diſcerning Reader, it muſt conſiderably weaken the authority of the whole, to obſerve; that there is ſcarcely a ſingle point of doctrine, whether new or old, in which they uniformly agree; ſo that, what is advanced by one, as beneficial and perfectly right; is controverted or condemned by another, as pernicious and eſſentially wrong.

ALL medical ſcience at laſt centers in the cure of diſeaſes; and that is the moſt uſeful part, which enables us to effect it. To aſcertain the origin of a Stone in the bladder would therefore be a deſirable event which might perhaps lead more directly

to

to its prevention, or cure: I ſhall therefore take the liberty of mentioning the following particulars relative to the ſubject in queſtion.

Dr. Auſtin, in his ingenious Treatiſe on the Stone in the bladder, advances a new Theory to account for its formation: Having analyſed the human *calculus*, and finding it contained a very inconſiderable quantity of earthy matter, its ſubſtance being almoſt totally evaporated by gentle heat; he concluded that the ſtone is chiefly compoſed of *animal mucus*, preternaturally ſecreted by the glands of the diſeaſed bladder and urinary paſſage; and not of calcarious earth contained in the urine, and generated in the kidneys according to the prevailing opinion.

IN ſupport of this doctrine, and to ſhew that the earthy matter of urine is not neceſſary to form a Stone; *Dr. Auſtin* adduces caſes of Stones being formed in various parts of the body, which have no communication with urine or the urinary paſſages; which, indeed, is no ſlender evidence in favour of this new Theory: If it be juſt, his deductions from it, regarding the method of cure in calculous

calculous diseases, may be so likewise; *viz.* the disease not residing in urine, or being seated in the kidneys; but in the bladder and urinary passages; such medicines should be directed in its cure as chiefly act upon those diseased parts. The Author proceeds to remark, that the sudden ease, sometimes procured to the patient by drinking lime-water, and other medicines, could not have been brought about by their action on the Stone itself, but by their effects on the coats of the bladder. I shall conclude his observations in his own words.

"I do not presume to infer from any observations which have been made, that the urine may not often contribute something to the composition of the Stone: I only contend, that it is not the principal source of the Stone in most cases, and in some, that it does not assist at all in its formation. I conceive that the proximate cause of the disease, or Stone, does not exist in the uriniferous vessels of the kidneys, or in the fluid secreted from them, but in the coats and glands of the several cavities through which the urine passes."

WHAT

WHAT renders the preceding opinion probable is a fact in comparative physiology, not, I think, mentioned by the Author; which may be observed in the production of egg-shell, in oviparous animals; for, the *ovum*, during its residence in the *ovaria*, is imperfect, and consists of yolk only, invested with a delicate membrane; but, being detached thence, in its progress through the ovi-duct which is beset with mucous glands; by an animal process peculiar to this part, the egg not only acquires that fine gelatinous fluid, we call the *white*, but also becomes possessed of a hard, calcarious shell which reduced to powder and mixed with any fluid, exactly resembles the chalky matter voided by *nephritic subjects*.

THIS circumstance is mentioned by the celebrated *Harvey* in his Exercitations on the generation of animals; where, in speaking of the *Basse Island* in the north of Scotland, frequented by various birds and water-fowl, he thus expresses himself. "That which thus discoloureth the Island, is a white crust, which is friable, and of the very same consistence, complexion, and nature with the egg-shell. The bottom of the Island

ſland which the tide waſheth, every day, retaining ſtill its natural colour, ſheweth, that this *fucus* or ſophiſticated whiteneſs, proceeds from the liquid excrements of the birds, and by which, as it were with an egg-ſhell, white, hard, and friable, the walls are cruſted and diſguiſed. It is a thicker part of their urine, which we call *ſediment* or *hypoſtaſis*, in ours. I have found as much of this ſlimy cement in the repoſitory of a dead *oſtrich* as would fill one's hand: So in a *land-tortoiſe*, and ſeveral other four-footed creatures that are ovi-parous, this white, plaſtering ſtuff doth abound. Thus, chamber-pots, and places where people urine much, uſe to be over-caſt with a yellow cruſt, from the concreſcence of that ſubſtance which createth ſtones in the kidneys and bladder; and other parts of the body."

WHETHER therefore in a natural or diſeaſed ſtate of the body; there is, probably, always a conſiderable quantity of calcarious earth, which may paſs off by the urinary glands, together with their fluids; but where, by a *calcarious, or gouty diathesis*, it too much abounds and is long retained in

in the conſtitution; it occaſions *nephritic*, and *gouty ſymptoms*; for, it appears from the obſervations of *Van Swieten*, *De Haen* and other practical writers of the beſt authority, that *gouty and calculous ſymptoms not only concur, but frequently ſucceed, and alternately relieve each other.*

SINCE then *earthy matter* may be found in the bodies of all animals, even in a healthy or natural ſtate; it is highly probable that their elementary particles, in a certain degree, are eſſential to the well-being of the conſtitution, and only offend or become deſtructive to it, when they too much abound, and exceed their natural quantity: *The bones themſelves were once in a fluid ſtate, and originally formed of ſuch earthy matter.*

BE this as it may; if the mucous glands of the diſeaſed bladder and urinary paſſage have the power to ſecrete even a ſmall portion of calcarious earth with an abundant quantity of their mucus which together may concrete into a Stone, as ſuggeſted by the new Theory; there can be doubt, but the kidneys may alſo participate of the

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ſame morbid diſpoſition; and that the frequent or perhaps the principal cauſe of the Stone originates from the urine which like the Stone itſelf, plentifully abounds with a volatile, and fixed ſalt, oil, mucus, and a large portion of fixed air; but chiefly, becauſe, the *urinary tubes of the kidneys, have ſometimes been found full of ſand or gravelly particles*; *and the pelvis of the kidney itſelf loaded with ſabulous matter*.

RESPECTING the nature and conſtituent parts of the Stone, hardly any two authors agree; and as we can ſcarcely doubt their veracity, it may be concluded they deſcribed appearances as they found them, and that human *calculi* in different bodies are eſſentially different in their principles. By the experiments of *Hoffman*, on renal ſtones, it appears, they neither contain fixed, alkaline ſalt, nor calcarious earth; but only alkaline volatile ſalt (perhaps ſomething ſimilar to the *ſublimate of ſcheele)* ſuch as that obtained from hart's-horn: Neither did the ſtone contain oil, or ſulphureous principles. On ſome ſmall ſtones *Hoffman* poured ſpirits of vitriol, and upon others ſpirit of ſalt, neither of which diſſolved them;

but

but they ſoon diſſolved in ſpirit of nitre, and alſo in *aqua fortis:* But we are told, that theſe experiments were not made by *Hoffman* himſelf; and therefore more attention is due to *Dr. Hales*, and *Slare*, authors of the beſt authority and who relate what they ſaw with their own eyes. By the accurate experiments of the firſt; oil was obtained from a ſtone of the bladder, but more from biliary concretions: He remarks that, in both, above *one half of their bulk conſiſts of inelaſtic, fixed air*; ſo that when it was ſet at liberty, and rarefied by heat, it filled a ſpace compared to the magnitude of the ſtone from which it was detached, as 645 to 1: *Dr. Hales* therefore ſuppoſed, that, if by any means, this fixed air could be diſengaged from the ſtone in the bladder; it would not only loſe half its bulk, but, by its eſcape, the ſtone would be rendered ſo *porous*, and ſo much diminiſhed in coheſion, as to fall in pieces like ſand, and, in ſuch ſtate, be diſſolved by the conſtant flux of urine: He alſo farther obſerves, that this *fixed air*, when extricated and freed from its union with the ſtone, becomes elaſtic like common air. From the preceding circumſtances and his own

experiments,

experiments, the celebrated *Stahl* concludes, that, whatever has the power to extricate and disengage fixed air from a ſtone in the bladder, and reſtore it to an elaſtic ſtate, would prove a *real ſolvent for the human calculus.* From the tartar of rheniſh wine, *Hales* alſo obtained a quantity of air, in weight amounting to a *third part of the tartar*; and from its near reſemblance to the human calculus, he calls the laſt *animal tartar*. A biliary ſtone, in ſeven days, was diſſolved in *lixivium of tartar*, which would not diſſolve ſtones of the kidneys and bladder, although they were ſoluble in ſpirit of nitre.

Dr. Mead mentions the different degrees of concretion in ſabulous matter, from a clear, limpid water, to a milky liquor which ſhot into ſlender branching cryſtals, and coaleſcing became a hard, friable ſubſtance, in the kidneys of a boy five years old, who died in *St. Thomas's Hoſpital.* He therefore ſuppoſes that tartarous ſalts ſticking in the tubes of the kidneys are the principles of Gravel, and propoſes lixivial ſalts as a remedy to prevent them from ſhooting into cryſtals; and next, oily medicines to hinder them from con-

creting into a ſtone. — If this is the cauſe of Gravel and Stone; the uſe of crude mercury minutely divided, would probably alſo become an efficacious medicine, by pervading the urinary tubes, and promoting the ſecretion of urine. Emulſions of caſtor-oil, with lixivium of tartar will alſo be proper, as I ſhall hereafter have occaſion to obſerve.

BY *Dr. Slare's* analyſis of the calculus, it appears that oil enters into its compoſition; and *Liſter* perceiving that *iron* might be extracted by the loadſtone from the aſhes of a human calculus calcined by fire, concluded, that ferruginous particles might contribute to its formation.

IT has been experimentally and ſatisfactorily proved by *Dr. Ambroſe Dawſon,* that the human calculus, voided from the urinary bladder, differs in its texture, and is diſſimilar in the nature and quality of its parts, in different bodies; and even in the ſame individual, at different periods of time; inaſmuch that thoſe which may be diſſolved by an alkaline menſtruum (ſoap-lee, and lime-water) will not be affected by mu-

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riatic acid or ſpirit of ſea-ſalt; and *vice verſâ*; conſequently, from this practical fact, it is plain, there can be *no univerſal ſolvent for the ſtone.* Upon the whole, it may be concluded, that the human calculus generally contains different proportions of *volatile, urinous ſalt, oil, mucus, and earth*, with a very large portion of *fixed air* which conſtitutes one half of its bulk.

THE intent of this *Section*, by taking a view of the different *Lithontriptics*, is therefore to ſhew, that, like all other things, they are limited in their effects, and good or bad, according to their proper or improper uſe; and likewiſe, to inform the Reader, what he may reaſonably expect from their different qualities, under different ſymptoms, and circumſtances of the diſeaſe, as well as to fix his attention on ſuch as have been experimentally found moſt ſafe and beneficial.

HAVING thus examined the ſtate and condition of the ſolids and fluids, it is neceſſary to inquire, what medicinal ſubſtances are endowed with the property of preventing the ſeparation of gravelly matter from urine; diſſolving it when formed, or

expelling it from the body when it is ſuſpended in urine; for, thoſe are moſt likely to be effectual in *preventing Gravel* which is the origin of a Stone; eſpecially, as it has already been remarked, that in proportion to the *ſudden ſeparation and concretion of ſtony particles in freſh-made urine, the patient is more or leſs diſpoſed to Gravel*; and, as ſome ſtones are with difficulty diſſolved, and others cannot be diſſolved at all; we ſhould, if poſſible, endeavour to prevent their formation; or find out the moſt effectual method of expelling them before they become too large to paſs. The danger being thus obvious to the patient, if he is attentive to his own future good, he will endeavour to avoid it.

IT will now be proper to enumerate the ſeveral leading ſymptoms of Gravel, and Stone in the *kidneys*, the *ureters*, and *urinary bladder*; and to ſhew how they reſemble others for which they may be miſtaken. The firſt ſymptoms of Gravel are generally ſo ſlight that they are commonly diſregarded or imputed to other cauſes: But, when once they are aſcertained by its appearance

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in the urine, or in any other manner which may render the patient's diſorder ſelf-evident, he will then do well to remember, that the ſame calculous diſpoſition remains in his conſtitution after the ſymptoms are over, and will grow upon him with age, intemperance, or other concurring cauſes; and as ſabulous matter is known to concrete; this *diſeaſe which began with Gravel in the kidneys, if neglected, may end with a Stone in the bladder*; and, if the increaſe is rapid, without its ſpeedy expulſion, the patient will probably be obliged to ſubmit to *lithotomy*, which, as already remarked, is always uncertain, and often unfavorable in its event.

THUS, we are informed, that a nobleman received into his palace twenty-two poor perſons who like himſelf were afflicted with a Stone in the bladder, and whom he maintained, on purpoſe to undergo *lithotomy*, by the celebrated *Frier James who performed the operation upon the whole, and cured them every one: This nobleman then ſubmitted to the operation, by the ſame hand, but unfortunately died!*

 WHEN

WHEN a *nucleus* is found in the centre of a Stone that is either voided, or extracted, there is reason to hope the disease is at an end; but otherwise, the same disposition which prevails in the general habit may generate more: A *nucleus* may indeed arise from a small renal calculus, but it may also proceed from an extraneous body accidentally admitted into the bladder; where the cause being evident, affords hopes, that there is no spontaneous or permanent *nephritic tendency* in the constitution.

WHEN gravelly matter is lodged in the kidneys, and the nephritic symptoms prevail in a considerable degree; the patient feels pungent, pricking pains in the back and loins, with a sense of weight, attended with *nausea and vomiting*, and sometimes, especially after riding or violent exercise, voids bloody urine, with sharp, red sand, or chalky sediment mixed with mucus.

WHEN the urine is fresh, and quickly voided; the blood in it may be distinguished by its colour, which otherwise becomes of a dusky brown resembling strong coffee: Bloody urine, therefore,

after

after violent agitation of body, and where a ſenſe of weight and pain in the loins with vomiting preceded, are almoſt certain ſigns of ſharp Gravel or Stones in the kidneys; although it may alſo ſometimes proceed from a preternatural dilatation of the urinary tubes ſo as to tranſmit blood inſtead of urine; but if it ſucceeds a ſuppreſſion of bleeding piles, or other accuſtomed diſcharge of blood, is unattended with pain or fever, and not ſo copious or frequent as to impair the patient's ſtrength, it is not dangerous, but critical, and ought not then to be ſuppreſſed.

BY *nauſea* and *vomiting*, nephritic ſymptoms are to be diſtinguiſhed from thoſe of the *colic*, and alſo from *lumbago* or rheumatiſm in the loins, where the patient cannot, without pain, ſtand upright; but where ſickneſs and vomiting are generally abſent: Sometimes the *vomiting is bilious*, and therefore, this complaint has been miſtaken for one of the bilious kind; but, as it plainly ariſes from irritation and nervous ſympathy; bleeding, a ſolution of gum arabic, and *opiates* will be moſt proper to abate pain and inflammation, after which the *bilious ſymptoms will ceaſe.*

IN this particular cafe; *vomits*, which would agitate the body, and increafe inflammation, are improper, although they have fometimes been inadvertently directed, on account of the bile and ficknefs at ftomach, which here are only fymptomatic affections.

A large, fmooth Stone may long remain in the kidneys or bladder, without pain; while thofe which are fmall but angular, by their fharpnefs and irritation may excite the moft excruciating torture, which will always be moft violent and intolerable when they change their place and are moving from the kidneys through the ureters into the bladder; a fingular inftance of which happened many years ago in the daughter of *Sir Hugh Middleton*, who by the violent exercife of riding on horfeback, altered the pofition of the Stone which produced a mortal fuppreffion of urine; An abfcefs, with purulent matter was formed in the left kidney, and a brown Stone which was *fiftulous* or hollow like a pipe, was found at the *bottom of the left ureter*, where that tube, as already defcribed, paffes obliquely

into

into the bladder, and where renal ſtones are moſt liable to ſtick and occaſion *obſtruction of urine*; until the weight of that fluid in the ureter forces it through the narrow paſſage into the cavity of the bladder, by which the patient finds immediate relief from pain.

SHARP Stones in their progreſs from the kidneys to the bladder, not only occaſion the ſymptoms already mentioned, but exceſſive pain at the poſterior part of the bladder tending to the *rectum*, producing *teneſmus*, with frequent inclination and difficulty of paſſing urine, violent ſtricture acroſs the lower part of the belly, with numbneſs on the inſide of the legs and thighs, and their loſs of motion.

IN this painful ſtate of the diſeaſe, where, from the vaſt degree of irritation, fever and inflammation of the affected parts are to be feared; forcing or *diuretic medicines* would aggravate the ſymptoms, and therefore ought never to be given; although this neceſſary caution is often diſregarded, to the great detriment of the patient's ſafety.

THOSE

THOSE remedies which relax the ſolids, dilute the blood, and diminiſh pain and febrile heat, will moſt relieve the patient; therefore, *bleeding*, the *warm bath*, *emollient clyſters*, *opiates*, and *plentiful dilution*, with *mucilaginous*, *oily emulſions* which mollify, and as it were conſtantly *bathe the kidneys*, will be proper and neceſſary.

IN nephritic caſes, therefore, half a pint of ſhell lime-water, with a fourth part of milk, may be drank three or four times a day, as the ſtomach will bear; or two drams of almond, or caſtile ſoap diſſolved in half a pint of thin chocolate may be taken, at two doſes by proper intervals; for, repeated experience has ſhewn, that both ſoap and lime-water, may be largely taken, without injury to health, or that putrefaction of the blood and juices apprehended from their uſe; but ſhould the laſt be nauſeated by the ſtomach, or when the appetite fails; *alkaline, mephitic water* has been obſerved in ſuch caſes, to relieve both. The almond emulſion, with forty drops of lixivium of tartar, ſweetened with manna, in the quantity of four ounces, may be taken twice or thrice a day, and is not only an elegant, but an efficacious medicine in nephritic

nephritic cafes. Half a dram of alkaline falt diffolved in three ounces of water fweetened with honey, may be fwallowed; and immediately after it, half an ounce of frefh lemon-juice, diluted with the fame quantity of water; this mixture will ferment in the ftomach, and has been recommended as a powerful diffolvent.

Birch fap has alfo been recommended in *nephritic cafes*; and *maple-juice*, of which, as well as the former, fugar may be made, partaking of the fame quality, may perhaps be more, or equally beneficial: Thofe remedies however fhould be regularly purfued for feveral months, otherwife no lafting effect can be expected from them. But indeed, the truth is, they are much better calculated to prevent the formation of Gravel in the kidneys, than to diffolve it when concreted into a ftone in the bladder.

Seltzer and *Carfbad-waters* are much celebrated by *Hoffman*, for their extraordinary efficacy in all difeafes of the bladder and urinary paffages, whether proceeding from calculous matter or other caufes: Both thefe waters, according to his experiments

periments contain a large quantity of foſſil alkali combined with fixed air; and probably produce their good effects, in the ſame manner, as the *mephitic, alkaline water in which thoſe qualities predominate; and, by the experiments of Dr. Falconer, act in a manner more mild, and efficacious, than that of water ſimply impregnated with fixed air:* He ſuppoſes that the alkaline, mephitic water acts on the gravelly particles, while the latter only diſſolves the mucus which glues them together.

IN other reſpects, the method of cure, with little variation, may here be purſued, as that directed for relief in paſſing gall-ſtones, and particularly mentioned in the Section *on diſeaſes of the Liver*, at page 275, to which the Reader is referred; but it may be neceſſary to add; that *Emetics*, if they are given at all, ſhould be directed with more caution than in bilious caſes proceeding from gall-ſtones; and that, after the warm bath, opiate, emollient clyſters, and fomentations to the loins; *cupping-glaſſes*, with, or without ſcarification, have been applied, to facilitate the deſcent of ſtones through the ureters, with great benefit,

benefit, both by the antients and moderns; beginning to place them firſt above the kidneys, and afterwards proceeding with them downwards, in the direction of the pain towards the groin and neck of the bladder.

IT has been remarked, that ſtones in the bladder, and kidneys have been found at a very early period of life, and the following caſe is an inſtance of it.

SEVERAL years ago, I was deſired to viſit a child about five years old, the ſon of a tradeſman in *Bridge-ſtreet*, *Weſtminſter*, who had a ſtone in the bladder: As he was always complaining of his belly, he was ſuppoſed to have worms; but by the frequent endeavour to make water, which was ſometimes obſtructed, the irritation at the extremity of the urethra, and other ſymptoms; I ſuſpected a ſtone, and deſired Mr. *Bromfield* might be called in, who on paſſing the catheter plainly perceived it: At that tender age, he underwent the operation of *Lithotomy*; which being performed by that dexterous operator, and judicious Surgeon; a ſtone, about the ſize of a ſmall pigeon's egg, was extracted, and he ſoon perfectly recovered.

THE

THE ſigns of a Stone in the bladder are very equivocal, and many of them ſo common to other diſeaſes, as to render them uncertain: Indurated tumours at the neck of the bladder, for inſtance, are attended with ſymptoms like thoſe of a Stone; alſo an *ulcer*, or ſcirrhous enlargement of the bladder itſelf; and therefore, to diſtinguiſh them more juſtly, it will be neceſſary to attend to the ſeveral ſymptoms and circumſtances which either precede or follow the evacuation of urine; namely, to remark whether the patient diſcovered the ſigns already mentioned of a diſpoſition in his urine to form *calculi*, or whether he was deſcended from calculous parents; whether the ſymptoms of a renal ſtone preceded, and the violence of pain ſuddenly ceaſed; laſtly, whether the ſymptoms are like thoſe peculiar to a Stone in the bladder; particularly, that of exceſſive pain which comes on when the patient has juſt done making water, in voiding the laſt drops, and is owing to the contraction of the bladder on the ſharp, ſcabrous ſurface of the Stone.

It

IT ſhould alſo be remarked, that this kind of pain is more frequent when the Stone is too large to paſs, than when it is ſmall; for then, it is apt to enter the neck of the bladder with the firſt guſh of water, and as it were by corking up the paſſage, is more likely to produce an obſtruction or total ſuppreſſion of urine than a large one: On the other hand, when the pain and difficulty of paſſing urine is permanent, or continues alike during the whole time of its evacuation, and alſo afterwards; it is then highly probable thoſe ſymptoms ariſe from a diſeaſed ſtate of the bladder and urinary paſſages; or from ſome other cauſe inducing ſtrangury, which may proceed from an *ulcer*, a tranſlation of morbid humours, or ſharp ſcorbutic ſalts to the neck of the bladder; and alſo from the imprudent exhibition of *ſpaniſh flies*, or *turpentine*, and from the uſe of tart, old beer, or other auſtere fluids.

CONSIDERING the rapid growth of a renal Stone in the bladder, after its deſcent from the kidneys; its ſudden expulſion is a thing of the higheſt moment to the patient's ſafety; but unfortunately, he is lulled into a fatal ſecurity, by

by his preſent relief from pain, and often neglects the means of effecting it, till it becomes too large to paſs.

THE warm bath, emollient clyſters, and opiates where there is pain, with all ſuch applications as relax the urinary paſſage are the moſt proper for diſlodging it: It will alſo be neceſſary to dilute plentifully, ſo as largely to fill the bladder with fluids of the oily, ſoft, mucilaginous kind; ſuch as decoction of marſh-mallow, linſeed-tea, or almond-emulſion; and after retaining the urine ſo long as to excite a powerful endeavour to void it; to aſſiſt the firſt ſudden guſh of water, by a powerful effort, towards the expulſion of the Stone; by which means, it has happily been effected.

STONES after paſſing the neck of the bladder will ſometimes ſtick in the *urethra:* An inſtance of this kind occurred to me in a paſtry-cook in *St. Martin's Lane*, which with ſome difficulty was extracted. In ſuch caſes we are informed by *Proſper Alpinus*, that the Egyptians ſucceeded by *inflating the urethra*, from which, the urinary canal was ſo dilated and enlarged as to allow paſſage for the ſtone.

Pareira

Pareira Brava, American wild Vine, or *raiz de nossa Seinora*, was much recommended, and highly extolled in *Portugal*, ſeveral years ago, for its efficacy in Gravel and Stone, the jaundice, *obſtruction of urine*, and all diſeaſes of the urinary paſſages. *Geoffroy* gave it with ſuch ſucceſs, that his patient was ſoon relieved of a *ſuppreſſion of urine*; and in other caſes obſerved large quantities of gravel, and even ſmall ſtones voided by its uſe: He likewiſe aſſerts the great benefit of this medicine in ulcers of the kidneys and bladder, where the urine which had been *purulent* and voided with great pain, afterwards became clear like healthy urine and paſſed with eaſe; in the ſame manner as after the uſe of *Uva Urſi*: Thoſe good effects he aſcribes to its attenuating quality, in diſſolving that mucus which unites the gravelly particles, and not to its power of diſſolving the ſtone.

THOUGH I doubt not the efficacy of this medicine, yet as *mucus* has often been miſtaken for

matter; *Geoffroy* might poſſibly fall into an error in ſuppoſing the *urine purulent*; it will therefore here be proper to ſpecify their real difference.

THE late ingenious Mr. *Charles Darwin*, in his Diſſertation which gained the prize-medal given by the Æſculapian Society of Edinburgh, whoſe premature death, all lovers of ſcience deſervedly lament, has experimentally pointed out the moſt certain criterion or unerring teſt by which to diſtinguiſh the difference between *matter* and *mucus*, in the following manner.

Matter and *mucus*, in different proportions, are both ſoluble in vitriolic acid: The addition of water to either of theſe ſolutions, decompoſes them; *mucus* generally ſwims on the mixture, whereas *pus* or matter falls to the bottom. *Alkaline lixivium* generally, though with difficulty, diſſolves matter and mucus in different proportions: Water added to the ſolution precipitates matter, but does not precipitate mucus, &c.

Pareira

Pareira Brava is an article of the *materia medica* in the *Lusitanic Dispensatory*, and when I was at *Lisbon* was so much in vogue among the portugueze nobility and others, as to make a principal ingredient, in most of their *diuretic ptisans*: The root was also given in powder from twelve grains to half a dram; and in decoction, from two to three drams or more; but I was informed that it was necessary to use caution in not directing an over-dose, lest it should excite heat and inflammation of the kidneys. This root is of the *convolvulus* kind, about the thickness of the finger, dark-coloured and wrinkled on its surface, and internally of a yellowish brown: By a clean-cut, transverse section of the root, a number of concentric circles appear intersected with *radij*, from the centre to the circumference, which give it a very beautiful and uncommon appearance, as if it was the effect of art; between those several divisions, as it were in little cells, lies a kind of concreted substance, of a bitterish sweet taste, not ungrateful, and which, in its recent state, seems to have been a kind of gluton or rich sap: Being then a new medicine, and much talked of

at *Liſbon*; I brought with me a conſiderable quantity of it when I returned to *London*, and preſented ſpecimens to ſeveral medical gentlemen, with an account of its effects; but it was regarded in the ſame manner as when I mentioned the uſe of *Cryſtals of Tartar*, which I had ſeen given with extraordinary good effects in the cure of Dropſy, at the public Hoſpital in *Florence*: But now, ſtrange to ſay, it would be an unpardonable omiſſion, to ſuffer a patient to die of dropſy, without exhibition of that medicine: Such is the run, or rather the epidemic rage of faſhion in phyſic, as in foppery; that nothing but the exalted genius of *Peter Pindar* can do juſtice to the ſubject!

Uva Urſi, a ſpecies of *arbutus*, common in *Sweden*, and ſo aſtringent as to be uſed in tanning leather, is another medicine of reputed efficacy in complaints of the Gravel and Stone, and in ulcerous diſeaſes of the urinary paſſages. The celebrated *Linnæus*, as well as *De Haen*, mentions the extraordinary efficacy of this plant in ſuch caſes. Its dried leaves, in powder, were given in the quantity of half a dram, for ten or twelve

days

days together; and with ſuch ſpeedy relief to the patients, that they thought themſelves cured; although it appeared, on paſſing the catheter, the ſtone in the bladder remained as before. By its uſe, the urine of ſuch as took it, inſtead of being glutinous, fœtid, and calcarious, became more clear and inodorous, like healthy urine.

THE relief procured by this medicine was often laſting, and where the ſymptoms returned, a *repetition* of it was attended with the ſame good effects as before; which were ſuch indubitable proofs of its ſingular efficacy, that it may be proper to inquire in what manner it acted on the conſtitution.

IT has been remarked, in ſpeaking of bitter aſtringents, that they poſſeſs in ſome degree, a *ſedative power*; whether this may be the property of the *Uva Urſi* or not, remains to be determined; but being a ſtrong aſtringent, it would rather increaſe the coheſion of that mucus which forms a great part of the ſtone, than tend to ſeparate or disjoin its parts, and therefore does not ſeem to act upon the ſtone itſelf, but on the parts

 which

which are irritated and affected by it: Like the peruvian bark, by giving a greater degree of ſtrength and firmneſs to the general ſyſtem, and *diminiſhing the ſenſibility and irritability of the bladder and its mucous glands, it moſt probably produces its effects* and may afford hopes of the like benefit, from a trial of other vegetable ſubſtances, of a ſimilar nature.

Fixed air conſtitutes a part, and almoſt univerſally enters into the compoſition of all bodies; and whether conſidered as a philoſophic, or medical ſubject, has been found to poſſeſs ſuch powerful and extraordinary properties, that it has exerciſed the ingenuity, and employed the leiſure of ſome of the firſt philoſophers, and phyſicians in Europe. It conſtitutes the volatile principle in mineral waters, and particularly abounds in thoſe of the *Caroline Spa*: From this principle, as well as its *ſparry quality*, the water poſſeſſes the power of relieving thoſe affected with *Gravel and Stone*, which have been found to diſſolve in it; and likewiſe in the urine of thoſe who drank it copiouſly, as obſerved by *Springfield*, who wrote on that ſubject ſeveral years ago.

THE

THE *fixed air* which moſt of the German Spa waters contain, is *acidulous*, being that volatile principle which gives them pungency and agreeable taſte, and in which their virtues chiefly reſide. By the acid of theſe waters, alkaline bodies may be ſaturated and neutralized, like lemon-juice with ſalt of tartar.

BY means of acidulous gas, iron is diſſolved and ſuſpended in moſt of the chalybeate waters, which falls to the bottom of the bottle, in form of a *yellowiſh ochre*, whenever the gas evaporates; but if this ſubtle ſpirit or fixed air as it is called, be reſtored to the water by art, the ochre is again ſoon diſſolved, and the water becomes clear. Hence it may be aſked, whether *alkaline, mephitic water*, largely admitted into the animal body, may not act on the calcarious matter of urine in the ſame manner; and by keeping it in a ſtate of perfect ſolution, thus produce its good effect, by conveying ſuch matter out of the body?

THE Honorable Mr. *Cavendish* has clearly proved, that calcarious earth is rendered soluble in water impregnated with more than its natural quantity of *fixed air:* This circumstance suggested an idea that the human calculus, which in part, contains such earthy matter, might perhaps be dissolved by *mephitic water* or that strongly impregnated with fixed air, which was afterwards verified; and particularly, as it had been observed by *Dr. Hales*, that small human *calculi* were diminished by means of such air in fermenting mixtures; also because this conjecture was confirmed by a similar solvent power in the *Caroline waters* possessed of such fixed air, and in the urine of those who copiously drank them.

FROM the ample and repeated experiments of the late *Dr. Dobson*, in his Commentary on *fixed air*, and those of the accurate and ingenious *Dr. Falconer* on the same subject, in his Appendix to that valuable work; the following conclusions may be drawn; viz. that in all diseases of the bladder and urinary passages, from gravel, stone, ulceration, or other morbid affections of those parts, attended with pain and fever; the discharge

charge of mucus, and even of matter; the good effects of *fixed air* have been manifest and indubitable; and so completely ascertained a safe, and in many cases an efficacious remedy, as to render it worthy of attention, and of still farther trial; for, although it may not effect a solution of the calculus, it has nevertheless, often been observed to remove the painful symptoms; being also grateful to the taste, and highly refreshing to the stomach of the languid patient. It therefore, only now remains to mention, *the most simple manner of preparing it*; the quantity in which it should be administered, and the regimen necessary during its use.

THE most simple, and expeditious method of preparing *mephitic water* is as follows: Let any quantity of pure water be suspended within a large vessel half full of fermenting liquor, and let the water be frequently agitated with a churn-stick, so as constantly to expose its surface to the vapour proceeding from the liquor. When the water is thus strongly impregnated, it should

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be removed and quickly put into bottles or ſtone veſſels *cloſely corked*; and placed, with the cork downward, in a cold cellar.

ANOTHER method of impregnating water with fixed air, by a glaſs apparatus contrived and recommended by *Dr. Nooth*, is ſo well known, that it will be unneceſſary to deſcribe it; but the merit of the original invention is due to *Dr. Prieſtley*.

THE *alkaline, mephitic water*, for the reaſons already given, being preferable to ſimple water impregnated with fixed air detached from chalk and water with oil of vitriol, may be expeditiouſly prepared in the following manner, only by ſubſtituting *a ſolution of ſalt of tartar, inſtead of common water*: To five quarts of pure water, add one ounce and a half of ſalt of tartar, and after it is perfectly diſſolved, let the water be poured off from the dregs, through a double flannel bag, for the purpoſe of being impregnated with fixed air, either in the manner already mentioned, by being expoſed to the ſubtle gas of fermenting liquor, or by the glaſs apparatus recommended

commended by *Dr. Nooth.* The water will be more or leſs impregnated with fixed air, in proportion to the time the proceſs continues; two days being generally required for that purpoſe when prepared by the glaſs machine; but, if expoſed to fermenting vapour, a few hours are ſufficient.

HALF a pint of this water taken three or four times a day has been found highly beneficial in calculous complaints, and in many diſeaſes of the ſtomach, and bowels. For the benefit which may be derived from the uſe of this medicine, the public is obliged to *Benjamin Colborne*, Eſq. of *Bath*, who took it for a conſiderable time with extraordinary good effects in a calculous diſorder with which he had been long, and ſeverely afflicted. In a word, this water has been experimentally found to poſſeſs a conſiderable degree of ſolvent power upon the human calculus; it alſo *reſiſts putrefaction*, and being grateful to the ſtomach, and mild in its operation, may always be taken with ſafety.

IN

IN gravelly complaints, the patient may take every day, by intervals, three half-pints, or more, of this *mephitic water* ſweetened with honey, for common drink: Mild caſk-ale, or ſpruce-beer may alſo be drank occaſionally, eſpecially at meals. Seltzer water with rheniſh wine, in a ſtate of fermentation may alſo be uſed at pleaſure.

BUT as ſome *calculi* are with difficulty acted upon by mephitic water, eſpecially thoſe which are chiefly compoſed of mucus from the bladder; previous to the uſe of this medicated water, it may be proper to try whether the gravelly matter voided by the patient will diſſolve in it; if not; another medicine better appropriated to its nature may be uſed; namely, a *lixivium of tartar* in whey, or even the cauſtic alkali or capital ſoap-lee may be given with caution, in a ſolution of gum arabic, or veal-broth.

THE celebrated *Baron Van Swieten*, greatly to his honour, in ſpeaking of the various remedies for the Stone, takes a very candid and circumſtantial view of Mrs. *Stephens*'s Medicine; like one whoſe

whose only aim was truth, and the public good; and not in the supercilious manner of Dr. *Mead* who with more pride than propriety calls it an *old woman's remedy*, and reflects on the wisdom of legislature for paying so liberally in the purchase of it: *Peruvian bark* and some of the most valuable medicines known, we are told were discovered by chance, or experience of the vulgar, after accurate researches had been made for them in vain: Had *Dr. Mead* been among the american savages, and seen them cure the *hydrophobia*, that dreadful symptom from the bite of a *mad dog*, by a medicine unknown to him; under those alarming circumstances, I believe, he would have stooped from his dignity, and have been glad to avail himself of its benefit.

ALTHOUGH the expectation from *Stephens's* Solvent might be too great; its good effect as observed by *Van Swieten*, in many cases, has been proved; and it was followed by this public advantage, that, thence, the use of *lime-water* seems to have been introduced; and many experiments made

made with it, and other valuable medicines of a ſimilar nature, which otherwiſe would probably never have been known.

Mrs. Stephens, by birth a gentlewoman, we are told, firſt began to adminiſter her medicine about the year 1720, and after many alterations and improvements, to render it more ſimple and efficacious, at laſt confined herſelf to the following form: She gave *egg-ſhells calcined to whiteneſs, in the quantity of two ſcruples, or even one dram*, thrice a day, in a glaſs of white wine or any convenient fluid; drinking after each doſe, from *half an ounce, to nearly one ounce of caſtile ſoap* diſſolved in five or ſix ounces of water ſweetened with honey: Thus adminiſtered the medicine kept the bowels gently laxative; but here, as in other caſes, the doſe may be increaſed or diminiſhed according to circumſtances, and as the ſtomach will bear; but it is proper to remark, that where the patient is very infirm, and the bladder and urinary paſſages tender, the *ſhell-lime may be rendered milder by a leſs degree of calcination.*

BY

BY the uſe of theſe medicines it was proved, that gravel was expelled from the kidneys, and even ſtones in the bladder ſometimes diſſolved; but, as it was obſerved, that the urine not only acquired a ſolvent power, but was thereby alſo rendered alkalious and putrid; it was with reaſon apprehended, they might diſſolve the blood and induce a putrid tendency in the general habit: Future experience however removed this apprehenſion, and proved that, in general, neither their quantity nor continued uſe, injured the conſtitution. The urine of thoſe who take theſe medicines does indeed become alkaline and effervesces with acids; but *Van Swieten* obſerves it does not hence follow that the blood and juices will be affected in the ſame manner; for, urine contains much more ſalts than blood; and therefore, when lime-water is added to it, exhales an offenſive vapour.

Dr. Huxam acknowledged the virtues of theſe medicines, and *Morand* atteſts that many had taken them for a long time without injury; nay ſome with ſuch alleviation of their complaints, that they thought themſelves cured: He however obſerves,

ſerves, that in ulceration of the bladder or urinary paſſages, thoſe medicines are pernicious. The obſervations of *Hartley* alſo confirm the action of theſe remedies on the Stone, who has given figures of Stones which had been eroded and rendered brittle from their uſe.

BUT as theſe medicines contain a large quantity of calcarious matter; it has been ſuppoſed, that a great part of that voided with the urine, during their uſe, was not the calcarious matter of a ſtone in the bladder, but of the lime taken to diſſolve it; for, it appears from the accurate experiments of the late ingenious Dr. *Macbride*, 'that lime-water, even in its moſt limpid ſtate, contains calcarious earth which inſtantly ſeparates from it, and ſubſides when the fixed air is reſtored to it, of which it had been deprived by calcination.

HENCE it is concluded, that, in the ſame manner, when theſe medicines abſorb, or releaſe the fixed air contained in the human calculus, it then becomes porous, brittle, and in a ſtate of ſolution; and therefore, that the ſolvent power of *lime* or *lime-water* when taken with milk, or other fluids

fluids, replete with fixed air, are considerably weakened in their effects, by their combination with the fixed air of such additional fluids; and even that *soap itself is not necessary towards their solvent power*; as Mrs. *Stephens's Medicine, at first, consisted of calcined egg-shell only*, and without the addition of soap afterwards added to keep the bowels open, was attended with powerful effects as a solvent.

IN the case of the late Rev. Dr. *Newcomb*, who daily drank two quarts of *lime-water without soap*; it was proved that his urine possessed the power of dissolving human calculi immersed in it; it may therefore be reasonably presumed, that urine thus strongly impregnated, may even have the happy effect of dissolving some kinds of stones in the bladder; especially those which contain a considerable portion of volatile matter called the *sublimate of Scheele*, and are not of a flinty nature.

As far as soap possesses a solvent power, it entirely depends upon the *alkaline salt* in its composition, rendered more acrid by the addition of

quick lime, ufed by the foap-makers, and by them called *capital lees*, which, according to the experiments made by *Dr. Hales*, entirely diffolved the human calculus; but this like *fpirit of nitre* which has the fame effect on ftones taken from the bladder; by its cauftic acrimony is deftructive, when undiluted, and if much weakened by the addition of fluids, and taken by the mouth, is confiderably divefted of its power. This was fuppofed to be *Blackarie*'s medicine, and afterwards given by *Chittick* in veal-broth, or other glutinous fluids; but although this caution was ufed; where the urinary paffages were tender, it was found fo irritating as to occafion pain, inflammation, and fometimes bloody urine. We are informed that *Adams*'s Solvent is of a different kind, and fome of the cafes annexed to the account of it by Mr. *Perry* tend to favour the affertion; but where the compofition of a medicine is unknown; its virtues can only be truly eftimated by the effects it produces.

THIS appears to be the *rationale* or manner in which lime or lime-water acts upon the Gravel and Stone; as hinted at, and afterwards in a man-

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ner pointed out, by that benevolent, and laborious investigator, the good and reverend *Dr. Stephen Hales*, with whose venerable name, this short narrative of the medicine in question must end.

By the experiments of *Dr. Whytt*, it appears that lime-water acquires a considerable degree of additional strength when poured on quick lime recently taken from the fire; and that such water, especially that prepared from calcined sea-shells, acts so powerfully on the surface of the human calculus *without the addition of soap*, as to render its surface white, soft, and as it were mucilaginous; and that it does not like *Stephens*'s Medicines, make the urine putrid, and alkaline, which seems owing to the soap. The proportion of such lime, to water, may be, *one pound, to seven or eight of water*, and after they have remained together six or seven hours, the water may be poured off, and being rendered more clear by passing through double flannel, may be kept in close-corked stone bottles for use.

Dr. Whytt asserts, that when this water is mixed with urine it prevents the elementary particles of stone from concreting, and that it may be drank in the quantity of several pints every day, with great relief to those afflicted with Gravel and Stone; avoiding, during its use, all *fermented liquors* and such aliment as contains much fixed air, for the reasons already mentioned, in speaking of its manner of acting on the Stone.

THAT recumbent position of body in which the kidneys are least compressed, and the secretion of urine least impeded, will contribute most to the ease and safety of calculous patients: — Hence, lying on the side rather than the back, and with the shoulders elevated, will be eligible; as the urine, from its own gravity, will then sooner descend by the ureters into the bladder.

FROM a *Recapitulation* of the several preceding circumstances, and review of the various methods, and medicines recommended for the relief and cure of diseases incident to the *Bladder and urinary passages*, the following deductions may be made; namely, that organical diseases from

a *vitium conformationis* of the parts, are chiefly to be remedied by manual operation; that thoſe proceeding from advanced age, may be relieved; and that others which are the conſequence of *venereal reliques*, or other particular diſeaſes, can only be cured by means directed to their ſeveral cauſes: Of *nephritic complaints* it may be obſerved, that, like the gout, they are frequently *hereditary*; and in the beginning, before the morbid cauſe produced its effects, might probably be prevented, by avoiding as much as poſſible, their exciting cauſes, and by the adminiſtration of ſuch medicines as brought about an alteration in the general habit of body, ſo as to *counteract the hereditary, morbid cauſe.*

IT may alſo be remarked, that ſome *Lithontriptics*, as *Pareira Brava, Uva Urſi, &c.* relieve the calculous ſymptoms without acting on the Stone; by diminiſhing the ſenſibility and irritability of the coats of the bladder and urinary paſſages; that *capital ſoap-lee, lixivium of tartar*, and others of the ſame quality, act by diſſolving the mucus or animal glue which binds the ſtony particles together; that *fixed air*, with which al-

kaline, *mephitic water* is ſtrongly impregnated, has the power to diſſolve calcarious earth; and in the ſame manner, that iron is diſſolved by the ſubtle, acidulous gas with which the german, chalybeate waters abound, and upon which their virtues chiefly depend; that *lime or lime-water* act on the calculus, by abſorbing or extracting its fixed air, which renders it porous, and weakens the coheſion of its parts, ſo as to reduce it, like rotten ſtone, to a ſpungy ſtate; but, as they often procure eaſe in a ſhort time, it is highly probable, that they alſo act by diminiſhing the ſenſibility of the bladder; and laſtly, that *ſparry water*, by attracting to itſelf, from the urine, ſtony particles ſimilar to its own, and conſidering the various foregoing circumſtances in its favour, may be conſidered as a Remedy worthy of attention and farther trial.

SUP-

SUPPLEMENT.

Observations on the Influence of the Passions on the Body, and Mind; and Effects of Weather on the human Constitution.

IN the preceding part of this Essay, I have had frequent occasion to remark the general Influence of the Passions, and the salutary power of *Air*, *Diet*, and *Exercise*; but as I could not without tedious digressions, sufficiently expatiate on their nature and manner of acting on the body and mind; many particulars, *highly conducive to health*, were reserved for the subject of this, and the following Section; in which it will be proved, that from their impressions, very injurious or beneficial changes are produced in both; consequently, it must be evident that the *government of the Passions is highly essential to health, and therefore, properly becomes an object of medical attention.*

BY the *Passions of the Mind*, is meant, those faculties with which it is endowed, and when naturally exerted, constitute the very *Elements of Life*; but when perverted, or erring in extremes, become destructive to its existence. Thus, the extravagance of *Hope* may be exalted into enthusiasm approaching to *madness*; and excessive *Fear* may sink into *despair*.

THE human body is made up of such frail materials, that they must necessarily decay, and often be put out of order. We are not only subject to pain and diseases, but to irregularities of the passions, and influence of weather; all which affect the *spirits*, *intellect*, and *memory*, so as to render the same individual different at different times, in *thinking*, *speaking*, and *acting*; as any one, not *robustly insensible*, may discover from his own feelings.

CONSIDERING its admirable structure, the number and exquisite fineness of its movements; that in a healthy state, all its parts must conspire to perform

perform their proper office, and that the least failure occasions disease; it appears astonishing, we so long possess " *this muddy vesture of decay.*"

THE periods of human life distinguished by *Youth*, *Maturity*, and *old Age*, are not inaptly compared to the seasons of *Spring*, *Summer*, and *Winter*; each being attended with certain peculiarities which sensibly affect the constitution.

IN *Youth* or the first period of life, the circulating force of the blood being more than equal to the resistance of its vessels; the solids are thrust out and extended in growth. After *Maturity*, the power of the solids and fluids continues nearly equal for several years, and this period constitutes the prime or summer of life. In the last, the quantity and circulating power of blood is every day diminishing, and, at last, overcome by the increasing rigidity and resistance of the solids, which introduce *old Age*.

EVERY period has its attendant Disorders; the first, subjects the patient to *Fluxes of Blood* from the nose or other parts, in consequence of the distended

diſtended vaſcular ſyſtem. *Glandular complaints* and eruptive fevers, as the *Small-Pox* and *Meaſles*, alſo at this time prevail.

In the ſecond; from a vigorous circulation and prevalence of the paſſions, the conſtitution is liable to *Pleuriſies*, *Inflammation of the Lungs*, and *Conſumption*; but where temperance is obſerved, and the vital parts are naturally ſound, this may be deemed the moſt healthy period of human life: It relieves, or cures ſome diſeaſes and is productive of few; for then *Scrophulous Complaints*, and habitual *Convulſions* have been known ſpontaneouſly to abate.

In the laſt period of age, the limbs become contracted and paralytic; the ſight, hearing, and intellect are impaired, from rigidity of the ſolids, and defect of circulation; the paſſions ſubſide, and every vital principle is at laſt extinguiſhed.

From what has preceded, it follows, that animal bodies continue to grow ſo long as the blood's circulating power is greater than the reſiſtance of its

its veſſels; and when there is an exact balance between them; animal growth will be totally at a ſtand. As age gradually hardens the blood-veſſels, they become an over-match for the force of the heart, whence they proceed; *old Age* then commences, the circulation languiſhes, and at laſt the animal dies.

PERHAPS, however, very few can properly be ſaid to die of mere old age; for even the life of *old Parr* might probably have been ſtill farther prolonged, had he not ſuddenly changed his air, and manner of living.

HERE we may obſerve, that by a kind of *fatal Neceſſity, animal bodies are worn out and deſtroyed by that very cauſe which conſtitutes the principles of life,* namely, the circulating power of the blood; conſequently, the number of years which men may exiſt, will probably be in proportion to the *velocity of the Pulſe*: If ſo, it will then follow, that ſuch a particular ſtate of conſtitution as produces the greateſt degree of ſtrength and vigour in youth, is not moſt likely to prolong life; but on the contrary, that thoſe of weak ſolids, and delicate

delicate habits in their earlier ſtate, grow old more ſlowly than others; and if the *Viſcera are ſound*, become for a time, more ſtrong and healthy from the very effect of age.

THE gradual, and *mechanical change* thus produced by age, from infancy to the lateſt period of human life, is continually introducing *a ſucceſſion of new ſenſations*, and conſequent ideas which alter the bias, and diverſify the operations of the mind; totally aboliſhing ſome paſſions, and putting others in their place. Thus, vanity, indiſcretion, and the immoderate love of pleaſure, are the unripe product of youth; whilſt auſterity, ſcrupulous caution, avarice, and a contempt of pleaſure, are the ſurly offspring of old age.

' PARTICULAR habits acquired by long cuſtom are alſo found inſenſibly to gain great aſcendency over the moſt intelligent minds, and produce very extraordinary effects, to the benefit or prejudice of health, as well as the moral or immoral tendency of the paſſions.'

THE

THE Body and Mind are ſo diſpoſed by the Author of nature, that they cannot act ſeparately, but are mutually affected *by the ſole mediation of the Nerves*, from impreſſions alternately made on the one or other; ſo that the ſeveral paſſions can only produce their effects, whether good or bad, by *increaſing or diminiſhing the influence of theſe ſenſible organs on the bodily ſyſtem.*

WHEN any injury is done to the brain or nerves by external violence, intoxication, or febrile delirium; the diſtinct exerciſe of the mental faculties immediately vaniſh, and the whole animal machine is thrown into diſorder. On the contrary, although the bodily organs remain perfect and duly perform their functions; ſo powerful are mental affections, that *extreme terror*, or *exceſſive joy* will ſuddenly diſconcert the animal economy, and ſometimes occaſion *faintings, convulſions, and death.*

THIS evidently ſhews, that many dangerous diſeaſes may be produced ſimply by impreſſions made on the nervous ſyſtem, without any morbid

bid change of the blood, except what ariſes from the conſequences of ſuch external affections. It alſo appears, that thoſe remedies which act by ſtrengthening the bodily ſyſtem, of which the nerves make ſo conſiderable a part, are of all others the beſt adapted for the cure of their diſeaſes; but what relates to this circumſtance, as well as the power of *ſympathy* between the *corporeal* organs, and that *ſentient principle* which puts them in motion, I have already more particularly explained in ſpeaking of nervous Sympathy.

THE human mind is principally actuated by two paſſions, — Hope and Fear; — the firſt increaſes the energy of the nerves, and as it were, lifts it above itſelf; the other depreſſes and ſinks it below its natural ſtandard.

MOST of the ſubordinate Paſſions appear to be compounded of the former: Thus the paſſion of *Love* is made up by a combination and conflict of the whole, as Hope and Fear, Grief or Joy alternately prevail; and *Terror* is only a ſpecies of ſudden Fear impreſſed with the extremeſt violence.

THOSE malignant feelings or *Demons of the Mind*, for they deſerve not the name of Paſſions, *Envy*, *Hatred*, and *Revenge* require no attention. They ought to carry with them their own puniſhment, and ſcorpion-like, ſting themſelves to death.

WE ſhall here take a ſhort *contraſted view* of the ſeveral *diſſimilar Paſſions*, in order to ſhew their powerful influence on the bodily ſyſtem.

Hope, or expectation of approaching good, like a ſovereign balm, diffuſes gladneſs round the heart, and by acting gratefully on the Nerves, increaſes their power on all the vital parts: It promotes a free circulation of blood, as well as the ſeveral ſecretions depending upon it; aſſiſts appetite and digeſtion, gives ſtrength and vigour to the limbs, and fortitude to the mind; it renders the countenance placid and chearful, and contributes univerſally to the preſervation of health.

Fear, or the dread of future Evils, on the contrary, deadens the vital feeling of the Nerves, chills the blood, retards its motion, and diminiſhes

nishes perspiration; it impairs appetite, depresses the spirits, and disposes the body to receive *Infection.*

Joy arises from the idea of present happiness, or of having avoided impending evil. This passion though allied to *hope,* and when moderate, like it, contributes to health, has yet been found, when sudden and excessive, to introduce a kind of torpor or palsy of the nerves; to suspend the heart's motion, and destroy the patient by fainting or *mortal syncope.* *Livius* the historian informs us, when *Hannibal* overcame the *Romans* at the battle of *Cannæ,* where fifty thousand men were left dead in the field; that two women instantly *expired with excess of joy,* on seeing their sons unexpectedly return, who were said to be among the slain.

Sophocles being pronounced victor among the tragic, Grecian poets; was himself overcome by a tumult of joy, and forfeited his life to glory. Such also was the fate of the *Spartan Father who died embracing his son* when crowned with conquest at the olympic games.

Sorrow

Sorrow implies ſome preſent calamity oppreſſive to the *Mind:* It is attended with univerſal languor, loſs of appetite and ſleep; giddineſs of the head, involuntary effuſion of tears, and fainting; and by diminiſhing nervous influence, it ſuſpends the natural ſecretions. The pulſe loſes its uſual ſtrength, and reſpiration becomes ſo laborious, that the patient frequently ſighs to relieve himſelf from an oppreſſive load at the breaſt.

Terror is a ſpecies of extreme and ſudden fear, from the apprehenſion of inſtant danger. It acts upon the nervous ſyſtem with the velocity of electric fire, and ſo much increaſes their influence on the body, as ſometimes to give it an incredible degree of ſtrength and agility; but when this momentary exertion is over, univerſal languor ſucceeds: During the ſurpriſe, the veſſels are ſtrongly contracted, and their blood impelled with ſuch violence, that recent wounds have been forced open and bled afreſh; but at other times a contrary effect is produced; where a kind of *apoplectic torpor*, preſently deſtroys the perſon affected; as in the caſe of the woman who on ſeeing

the oar drop from *Lunardi's Balloon*, and ſuppoſing it to be himſelf, was ſtruck with ſuch terror, that ſhe *inſtantly expired.*

So vaſt is the concuſſion given to the body, on ſuch occaſions, as to alter the fluids, and change the diſpoſition of their ſtrainers, to deſtroy the balſamic quality of milk in nurſes; and in others to *to turn the Hair grey*; an inſtance of which happened not long ago at *Hatfield Peveril* in *Eſſex*, in a boy who narrowly eſcaped being drowned.

AN ague, palſy, and fits of gout have ſometimes been baniſhed from the like cauſe; and the ſudden out-cry of fire in the dead of night, has been known, for a time, to reſtore ſight, or even the limbs of thoſe lame and bed-ridden for many years. However ſtrange it may appear, hiſtory informs us, that the ſon of *Crœſus*, who before had been *dumb*, when he ſaw the king his father about to be ſlain in battle by an uplifted ſword, cried out with vehemence, *Soldier, hold thy hand, thou kill'ſt the king!*

THESE

THESE are the formidable effects of *terror*, and if there are inſtances of its curing ſome diſeaſes, many more might be mentioned to ſhew its fatal power, by producing *apoplexy*, *convulſions*, and *death*.

Anger, or a ſenſe of injury ſuſtained, produces effects ſimilar to *terror*. When it is attended with *revenge*, the heart palpitates, the hand trembles, the eyes flaſh with rage, and the countenance alternately becomes red and pale. Nothing however is more falſe and inconſiſtent with the philoſophy of the Paſſions than the general opinion that *paleneſs* always indicates *revenge*, for it is as frequently occaſioned by *fear*, *exceſſive joy*, or *exquiſite ſenſibility*; and it would be eaſy to prove that the ſame cauſe which creates paleneſs of the face, at one time, might in the very ſame individual, occaſion it to become florid at another, according to the degree of ſtrength or weakneſs then prevailing in the body.

Anger has been obſerved to occaſion profuſion of *bile* with *ſickneſs*, *vomitings* and pain in the bowels. In thoſe of plethoric conſtitutions, it

has produced *apoplexy* and *death*, as in the caſe of Lady *H——ton*, and ſometimes *delirium* or *madneſs*; but on the contrary, ſuch as were of a cold, phlegmatic temperament and ſubject to *melancholy*, *dropſy*, or *intermittent fevers*, have been relieved by its effects.

THE paſſion of *Love*, of all others, is moſt difficult to be defined; ſo various are its affections and invincible is its power, according to age, ſex and temperament; or as it is attended by hope, and fear, grief or joy. Many inſtances have occurred, where thoſe affected by this bewitching paſſion, have become *epileptic*, or fell into a *nervous fever*, *conſumption* or *melancholy*; and I have known ſome inſtances where theſe diſeaſes, thus introduced, became *mortal* in the concluſion.

IF ſuch are the injuries brought upon the conſtitution by irregularity and exceſs of the Paſſions; how much ſhould it be the care of rational beings to guard againſt their inſults, and oppoſe their pernicious influence with virtuous and becoming reſolution?

Happineſs

Happineſs and *Miſery* are the lights and ſhades which fill up the out-lines in the *portrait* of human life. Every man naturally endeavours to attain one, and avoid the other, but by different means, and often diſproportioned to that end. We frequently deceive ourſelves in the purſuit and enjoyment of our wiſhes. Extravagance of hope often ends in diſappointment, and even a ſeries of pleaſurable events, at laſt loſe their power. To give them true reliſh, and make them laſting, the mind muſt refer to ſome former; painful ſenſation.

A perſon who always poſſeſſed health, is ſcarcely ſenſible of its value; but when loſt, let it again return, and he will bleſs the means which reſtored it. None enjoy riches ſo much as thoſe who have been at great pains to attain them, and taſted the bitterneſs of want. He who was always affluent, has, no competent idea of former indigence, to contraſt ſuch a ſtate, and exalt his preſent enjoyment.

WERE our pleaſures too exquiſite and laſting, they would wear out the body before its due time. *Permanent pleaſure can only exiſt in the mind.* Every extreme therefore, happily corrects itſelf, and every evil works its own cure.

IF the violent paſſions of the mind, harrow up the ſoul, diſturb its union with the body, and injure health; a conſcience pure, and uncorrupted,—the ineſtimable reward of virtue, will beſt reconcile them to each other and cauſe them to act in harmony: That will ſpeak peace to the mind, whatever the world may ſay, and ſhield it from the malignant effects of ſlander and unmerited abuſe.

WHOEVER is too ſolicitous about cenſure, fame or the poſſeſſion of temporal enjoyments, will ſeldom find repoſe: An ungracious look from his ſuperiors, or unmerited inſolence from thoſe below him will vex and diſcompoſe him. If he is ambitious, he muſt often feel the bitterneſs of diſappointment; if anxious for long life; a coffin or ſhroud, the apparatus of Death, will alarm and appal his ſenſes; while he who beholds thoſe mor-

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tal calamities with a philosophic eye; who is neither weary of living, or afraid to die, will find in himself inexpressible calm and repose.

THAT man, only, can be truly rich, who is most truly happy; and he is most likely to become so, who *enjoys health and a good conscience*, and with a virtuous resignation is prepared for the unavoidable evils which flesh is heir to; who expostulates with the folly and extravagance of his own desires, and although a hard task, at last convinces himself that *what he likes best, is not always best for him*; who, at all times, preserves a decent equality of mind; is not arrogantly elated with the delusive smiles of *Prosperity*, nor servilely cast down by *Misfortune* which, by prudence and piety, may often be converted into real benefit.

IN a word, the *Government of the Passions* is as essential towards preventing diseases of the mind, as *Temperance* contributes to hinder them from invading the body.

THE different ſeaſons of *Spring*, *Summer*, and *Winter*, have alſo a manifeſt influence on the body and mind. In Spring, animal, as well as vegetable bodies experience a kind of reſuſcitation; the nerves are invigorated, and irradiated with pleaſurable feelings; but when the autumnal leaves, like falſe friends, begin to fall off by the winter's cold; they are overſhadowed by melancholy gloom and all their delectable ſenſations are chilled and reverſed. The celebrated poet *Milton* was a remarkable inſtance of the truth of this aſſertion; for, we are told, his fancy made the moſt elevated flights in the Spring. His imagination in ſeveral parts of his *Il Penſeroſo*, *L'Allegro*, and *Maſk of Comus*, are fraught with the divine ſpirit of poetry; whilſt at other times he ſcarcely comes up to cold mediocrity.

IT will not here be requiſite to call in the aſſiſtance of *Phyſic* or *Philoſophy*, to prove the effects which different climates and alterations of weather have on human bodies, eſpecially thoſe which are infirm. The great difference experienced

ced by our feelings, from the ſudden changes of the atmoſphere, even in the ſpace of a ſingle day, or hour, will more powerfully confirm the reality of ſuch effects than all the reaſoning in the world.

Popular Diſeaſes, as well as bodily habit, and natural temperament in people of different places and nations, chiefly depend on particular ſituations, viz. the ſoil, air and water peculiar to each.

WE know that tranſplantation changes the ſhape and quality of ſome *vegetables*, and that certain *animals* loſe their native temper when tranſported to other countries. The phlegmatic diſpoſition of a *Dutchman*, or half-frozen, inſenſible conſtitution of a *Laplander* might be thawed, and mellowed down into more pleaſurable feelings; by the warm, delightful climates of *Italy* or ſouth of *France*. Influenced and animated by the air, and manner of living prevailing among the natives, he would, like them, delight in mirth, in muſic and ſociety; and from the ſame cauſe, an Engliſhman, at Paris, would perhaps be more than equal in vivacity to a Frenchman in London. Men

Men would not therefore pertly presume on the superior excellence of their bodily, or mental faculties, did they consider how accidentally they came by them.

VERY considerable changes on animal bodies are likewise produced from the mediation of the atmosphere, by the *Sun* and *Moon*, according to Dr. *Mead*, who has professedly treated on their influence. *Sir Isaac Newton* has clearly demonstrated, that by the united, and separate force of the *Sun* and *Moon* all the varieties of the tides may be accounted for. The waters of the ocean, and air of our earth are fluids subject, in degree, to the same laws of motion; and if the sea is agitated by the influence of those planets, so likewise will that ocean of air surrounding the earth be elevated to a considerable height by their attraction; especially, when they arrive at its *meridian*.

AGREEABLE to this observation, *Seamen*, *Shepherds*, and those whose interest is connected with changes of weather, and constantly reside in the open air, observe, there is generally a breeze of wind

wind about *Mid-day* and *Mid-night*, although the atmoſphere before that time had been ſtill and calm: By this ebbing and flowing of the ſea, and air; winds and tides are produced, which agitate and preſerve thoſe fluids in their original purity, without which we could not exiſt.

THE changes of air at *New* and *Full Moon*, eſpecially a little before the *Vernal*, or after *Autumnal Equinoxes* have conſiderable influence on health. At this time, ſtorms and tempeſts generally prevail; the air is rendered too light, and being inſufficient to blow up the lungs, the maſs of blood cannot paſs freely through them; hence difficulty of breathing, and palpitation of the heart, attended with ſleepineſs and oppreſſion.

BESIDES this cauſe of variation in the conſtitution, there is another equally prevalent, *viz.* a conſiderable quantity of air is contained in our blood, which is expanded by *Heat*, and condenſed by *Cold*. This air will always preſerve an equal balance with that preſſing on the ſurface of our bodies. In ſummer the veins are large and tumid, in winter ſmall and contracted; and this can only happen

happen by the contained air in the blood, taking up a larger, or ſmaller ſpace, according to the degree of heat exiſting in the body; for, the quantity of blood, at both ſeaſons, is preciſely the ſame.

FARTHER to illuſtrate this matter from bodily feeling: let thoſe of weak habits, and great nervous ſenſibility, recollect how they have been affected before a thunder-ſtorm, independent of fear, when the *Air* is rarefied and rendered preternaturally light, to an uncommon degree; and how immediately they find relief by the ſudden deluge of rain falling ſoon after, which, by cooling and condenſing the air, gives it ſufficient weight to counteract and repreſs the expanſion of internal air, as well as more effectually to blow up the lungs.

IN this conflict of the atmoſphere, when the air is overheated, they are not only half ſuffocated, like fiſhes out of water, and brought from a heavy, into a lighter element; but are ſometimes ſeized with head-aches, vomitings, or bleeding at the noſe, and univerſal tremor, from the *ſudden*

expanſion

expanſion of air in the blood, and the uncommon ſtreſs then laid on the vaſcular and nervous ſyſtem.

THUS, animals die in the exhauſted receiver of the air-pump, for two reaſons; firſt, becauſe they cannot exiſt when deprived of air, the motion of their lungs being then ſhut up; next, becauſe the blood-veſſels will be torn aſunder by the expanſion of the included air, when the counter-preſſure of the ſurrounding air is taken away. In conſequence of the ſame cauſe, a withered apple placed in the exhauſted receiver, becomes plump and freſh like one juſt plucked from the tree.

IN warm, damp weather, before rain, when mercury in the barometer falls; thoſe of infirm conſtitutions perceive an unpleaſurable ſenſation; the body is indolent, and the mental faculties leſs acute. The fleſh is then perceived to bloat and ſwell; they have aches and pains in different parts, pinchings in the bowels, and ſometimes a diarrhœa. They complain that the weather is dull and *air heavy*; whereas it is juſt the contrary; for, the external air having now loſt its *natural gravity*;

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the consequent rarefaction of the air in the blood, will produce a sense of weight and oppression in the body; so that we fall into an *error*, by applying that to the air, which is only the result of our own feelings. Before a fall of rain, when the atmosphere is damp and almost deprived of *electric fire*; the body is listless and inactive, and the skin contiguous to old sores which had been healed, becomes livid, from a stagnation of blood in the cutaneous vessels.

THE *malignant effects of the Syrocc wind are not confined to Naples*, but also prevail here, though in a less degree, when it blows from the same quarter, — the south-east; for, then the atmosphere is almost totally deprived of its fire or etherial spirit, as appears by the *electric machine* which can only be made to collect a very small quantity: At such times the *nerves* seem to lose their influence upon the body, which is affected with universal debility; pain in the limbs, and great dejection of spirits, all which presently vanish, when the wind shifts to an opposite quarter.

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IN ſuch caſes, where the circulation is deadened, and perſpiration obſtructed; the preceding circumſtances will manifeſtly point out the uſe of warm clothing, the fleſh-bruſh, exerciſe, and every thing which may *invigorate the torpid nerves, and promote a free circulation*; of which, the moderate uſe of generous wine, peruvian bark, with acids, and a tepid, ſalt bath, are the principal.

FROM what has been ſaid, it follows, that when the natural balance between the circumambient air and that contained in the animal body is deſtroyed, many temporary changes muſt happen, according to various alterations of weather, the moiſture and drineſs of the atmoſphere, and its degrees of heat and cold; all which will create unpleaſurable ſenſations hardly to be deſcribed.

WHEN the weather is intenſely cold, the weight of external air preſſing on the bodily ſurface may compreſs and overpower that within; and ſo much repel blood to the *heart* and *brain*, as to occaſion ſleepineſs, ſtupor, apoplexy, and death: Theſe ſymptoms have frequently been obſerved in cli-

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mates uncommonly ſevere; and more particularly where the elaſtic, internal air is increaſed and ſet at liberty by a diſſolved, ſcorbutic habit. The reaſon why moſt people ſleep better in the country, ſeems chiefly owing to the freſhneſs and greater gravity of the air acting more forcibly on the ſurface of the body.

THE air on the tops of very high mountains being too light, and inſufficient to blow up the lungs, occaſions difficulty of breathing and ſometimes the burſting of blood-veſſels in the weaker *viſcera*; eſpecially when violent efforts of body in gaining thoſe vaſt heights are ſuperadded. This ought to be a caution to ſuch, who in the eager purſuit of pleaſure and fine proſpects, might, otherwiſe, be forgetful of their own ſafety.

MANY inſtances might here be brought to ſhew the remarkable effects of *lunar Influence* in diſeaſes of the Brain and nerves. *Epileptic Fits* moſt frequently occur at *New* and *Full Moon*; and madmen are then more violently affected with frantic ravings.

Periodical

Periodical head-aches, as well as *fluxes of blood* from the noſe, lungs, or weaker *viſcera*, alſo happen more frequently at this time than any other, eſpecially about the *equinoxes*, when the influence of this planet is conſiderably increaſed; or where other accidental cauſes concur; as the violence of paſſion, ſummer heats, the uſe of mercury, or immoderate exerciſe; all which lay an additional ſtreſs on the blood-veſſels. Hence alſo *Apoplexy*, or other violent diſeaſes, which might have been prevented by *bleeding*, *evacuations*, and *ſpare diet*.

Dr. Mead mentions ſeveral patients, in whom the epileptic fit returned regularly at *new* and *full Moon*; particularly, in a girl, which afterwards kept its periods regularly with the *Tides*. *Dr. Pitcairn* alſo ſpeaks of a violent convulſion of the arm returning periodically twice a year, *viz.* in *March* and *September* at *full Moon*, near the vernal and autumnal equinoxes.

THE *Equinoxes* are particularly unfavorable to the unhealthy and conſumptive: At this time, according to *Sanctorius*, the vital powers of the

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body are uncommonly languid, and all its natural discharges suspended, especially that of *perspiration*. Irregularities of the passions, errors in diet, or other causes then concurring have therefore been observed to produce dangerous diseases.

In the months of *March* and *October* a greater degree of mortality has been observed to prevail, than at any other period during the year; and the principal reason of this seems owing to sudden changes of weather at those seasons. Weak solids cannot then, without violence and pain, accommodate themselves to the quick transition in the temperament of air, from one extreme to another.

At all times, when the atmosphere is moist and light, or abounds with noxious vapours; it will be proper to avoid the morning and evening air; the first is cold, and unfriendly; the last replete with damps and falling dews which in particular mineral soils, or near stagnating, putrid waters, are loaden with baneful qualities. At such times it will be eligible for the weak and valetudinary to retire from low situations, to those more dry and elevated,

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which are fanned by fresh breezes, and to use exercise which will give strength and vigour to the constitution.

CHANGES of air, as to its *gravity* and *lightness*, or the degrees of *heat* and *cold*, *moistur.* and *driness*, may all be known from those elegant and useful instrument the *Barometer*, *Thermometer*, and *Hygrometer*, from which many useful indications may be taken, relative to the preservation of health.

OTHER planets of the first magnitude, as well as the *Sun* and *Moon*, influence the human system; not in any supernatural or incomprehensible manner, but solely by the *mediation of our atmosphere*, conformable to the stated and universal law of nature; for, the celebrated *F. Hoffman*, who regularly kept a *Journal of the Weather* for ten years, and whose integrity was equal to his medical knowledge, solemnly affirms, that great and remarkable *meteorological changes* were brought about by appearance of the larger planets.

Observations on the ſalutary Power of Air, Diet, and Exerciſe, in the Prevention, and Cure of chronic Diſeaſes.

THE *Regimen of Diet*, and benefit of pure *Air*, and moderate *Exerciſe*, in diſeaſes of the *Viſcera*, make ſo neceſſary a part of the curative intention, that it is preſumed, the following *Rules* and *Cautions*, with ſuch particulars as explain their nature and qualities and the manner of their acting on the human body, may add to the utility of this Eſſay.

THE propriety and efficacy of Regimen, in maladies of the *chronic kind*, is apparent; for, as they are not attended with immediate danger, like acute diſeaſes; there is ſufficient time and opportunity for the choice of ſuch Air and Aliment as beſt accord with the nature of the diſeaſe and particular conſtitution of the patient, inaſmuch, that the univerſal benefit of *pure Air*, and *moderate Exerciſe*, aſſiſted with mild and ſimple medicines, if duly attended to, would often produce

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in the habit, a gradual, ſalutary, and laſting change; attended with a circumſtance which cannot fail to recommend them, *viz.* they may be beneficial to all, and can be hurtful to none.

As it is univerſally allowed that the *Air* of certain places has a pernicious effect on human bodies; ſo, on the contrary, it cannot be doubted but that which is temperate, and pure muſt contribute to the preſervation, or recovery of health: Diſeaſes called *endemial* or thoſe peculiar to certain places, as *agues*, *dropſies*, *&c.* and, on the contrary, healthy ſituations beneficial to animal life, both demonſtrably ſhew, how much *Health* may be affected, for the better or worſe, by cauſes always preſent to the body, and inſenſibly acting on the conſtitution.

SUCH diſeaſes principally depend upon preceding circumſtances; but human bodies being alſo affected by intemperance, and the paſſions of the mind; thoſe *acute diſtempers* called *epidemical* which ſometimes rage, for a time, with uncommon violence, among brute animals living in the open fields, and in a ſtate of nature, are more evident

proofs of its powerful and malignant influence. The first shews that the atmosphere of particular places, is at all times more or less unwholesome; the last, that the atmosphere in general, may become so for a time, from variety of morbid causes, which notwithstanding, are sometimes so obscure, that they would be scarcely known to exist were it not for their effects, as those of the *plague*, *influenza*, &c.

Pure air is more essential to life, even than food itself; for, animals will subsist without nourishment for a considerable time, but when deprived of air, they perish in a few moments: Neither animals nor vegetables can exist without *Air* and *Water*; but neither pure Air, or pure Water *alone*, are sufficient for vigorous growth of the last; for, even soft, river-water, will not answer that purpose, in a manner equal to refreshing rain which has been experimentally found to contain that vivifying principle, so essential to the support of vegetables, by philosophers called *Phlogiston* which not being universally known, and often imperfectly understood, it is necessary to explain. *Phlogiston* is that combustible matter contained

tained in the atmoſphere, which being collected takes fire in the clouds, in flaſhes of lightning, and is ſuppoſed to be the ſame principle as that of *electric fire itſelf.* — This inflammable vapour is alſo diſcharged from the lungs of animal bodies, from burning candles, and from liquors in a ſtate of fermentation. *Thames* water cloſely confined, after agitation on ſhip-board, has by means of this inflammable principle, been known to take fire, on opening the caſk at the bung.

It is not neceſſary to enter into a minute diſquiſition of all the properties of air: Its lightneſs, and gravity; its compreſſibility, and power to expand, have all been accurately deſcribed by natural philoſophers, and ſatisfactorily demonſtrated on the *Air-pump* and *Barometer.*

Air is neceſſary to the exiſtence of all animals; for, it is not only conſtantly taken into their lungs by reſpiration, and largely mixed with the food, ſo as to make a part of the animal ſyſtem, but is alſo conſtantly preſſing on the ſurface of their bo-

dies with different degrees of gravity: It therefore, can be no wonder that the human constitution should be so variously affected by it.

THE atmospheric Air we breathe, till of late was supposed to be a *simple element*; but philosophic investigation demonstrates, that instead of being pure, this fluid, in any given quantity, consists of scarcely *two parts of pure, dephlogisticated Air*, one which is impure, or as it is called by the chemists, *phlogisticated* air, and about a *fourth part of fixed air*: Pure or dephlogisticated air has nearly eight times the power of common air, either in sustaining life, by respiration, or supporting flame; for, without it, animals instantly die, and flame is extinguished in a moment.

AFTER common Air has been taken into the lungs in this state, and then breathed out or expired; on examination, it has been found, that the *gross, impure Air remained unaltered; the pure air was diminished in quantity; and the fixed air increased.*

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The proportion of these several kinds of Air being different in different places, according to the nature of soil, water and situation; the reason becomes obvious, why the health of the human body is so variously affected by them; and why some diseases are *endemial* or peculiar to certain places.

The florid colour of pulmonary blood or that which has circulated through the lungs, is owing to its having been impregnated by the *pure Air*; for, when respiration is laborious, or obstructed, as in *Asthmatics*, this florid colour of pulmonary blood becomes more faint and *pale*: On the contrary, when the action of the lungs is uninterrupted, and we breathe a more pure, dephlogisticated, country air; the whole mass of blood becomes perceptibly *more florid*, and imparts to the countenance, a more *fresh* and ruddy appearance.

Florid blood becomes black, when exposed to *mephitic* or unwholesome air, but is again restored to its colour, when mixed with pure, *phlogistic Air*, which it manifestly absorbs; because,

caufe, the laſt has been found conſiderably diminiſhed in quantity after remaining long in contact with it.

BY *pure Air*, then, can only properly be meant, that which is moſt free from the noxious *effluvia* of metals, and corrupted ſteams of vegetable, or animal bodies; and that which is neither too hot, moiſt, or dry, may be called *temperate air*.

THE atmoſphere, therefore, of our earth conſiſts of *pure air*, *phlogiſtic air*, *and aërial acid*, and the combination of theſe conſtitutes the common air we breathe; which, as already obſerved, becomes unwholeſome by frequent reſpiration, the combuſtion of fuel, or *effluvia* of putrid bodies, ſo as to be rendered highly noxious: Perhaps the *longevity* of the firſt inhabitants of this earth, might therefore be accounted for, by their breathing a purer atmoſphere than we do at preſent; conſidering the vaſt degree of its contamination, for ſo many thouſand years, by burning volcanos, putrid animals, and other cauſes.

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THAT these various causes might not totally extinguish and destroy that vital principle of the Air so necessary for the support of animal life; providence seems to have appointed a happy expedient, *viz.* the agitation of the Sea, and growth of Vegetables; for, as it has been experimentally proved, that *mephitic vapour largely combines with water when agitated*; and that the *perspirable matter of growing vegetables corrects putrid air*; there is great reason to conclude, that the ocean, like an immense vortex, envelopes or swallows up the putrid air, and that this great and salutary design of nature is also considerably assisted by the *antiseptic effluvia* of vegetable bodies.

THE atmosphere, by the effects of heat and cold, is alternately expanded and condensed, so as to keep it in continual agitation, by which, its purity is also providentially preserved. Hence the great unwholesomeness of sudden calms, and heavy rains, after long droughts, as those called *Monsoons*; likewise of a sudden thaw after severe frosts;

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for, then, colds, sore throats, fluxes of the belly, and diseases of the putrid kind are known to prevail with uncommon violence.

THE *effluvia* proceeding from pure, virgin earth fresh turned up has been found extremely refreshing to those of weak lungs and consumptive habits; and on the contrary, mineral exhalations have been observed to blight the contiguous grass and vegetables, and consequently must be highly noxious to animal bodies.

OF all metallic substances, that we know, *Iron* seems the least injurious to *vegetables* and *animals*; for, it enters largely into the composition of the first, and the last contain a small quantity of it, as appears by the attraction of the load-stone, when applied to their ashes.

AIR is always found to partake of the nature of the neighbouring soil and water, and is therefore more or less healthy according to the situation of particular places. The qualities of *Dew* which is only water impregnated with such *animal*, *mineral*, or *vegetable* substances as arise in

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vapour from the earth, afford the beſt means of aſcertaining the *local purity of air, and water*; joined to the *cuſtomary longevity* of the inhabitants of ſuch places, as live temperately.

THIS is a circumſtance of the utmoſt importance to thoſe who propoſe to raiſe buildings where they mean to reſide, which however magnificent, will afford little enjoyment to the poſſeſſor, if health the principal ſource of happineſs, does not there fix its abode.

ELEVATED ſituations in chalky, or gravelly ſoils, open to the north winds, and near the rocky banks of pure, running ſtreams, however ſevere the air may be, are by far the moſt healthy in Autumn or the heat of Summer. Inhabitants of high lands are obſerved to be more alert and ſtrong, than thoſe reſiding in valleys or low grounds where the air is moiſt and mild: In the firſt, it braces and invigorates the body; in the laſt, relaxes and deadens its vital power.

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FOR the ſame reaſon, heaths, and open commons overſpread with ſweet-ſmelling ſhrubs, where the air is freſh, dry, and as it were *medicated*, are generally found to be healthy: but near woods and incloſures, where it is damp and confined; *complaints of the bowels, rheumatiſms, agues, and dropſies frequently prevail.*

RICH ſoils lying low, and contiguous to the marſhy banks of lakes or large rivers, expoſed to the ſun's heat, or ſouth-weſt winds, are in the higheſt degree noxious; the air of ſuch places being damp and loaded with the corrupted ſteams of animal and vegetable bodies, which there rot, and are diſſipated in putrid vapour.

SUCH ſituations will diſpoſe the body, to a lax, bloated, ſcorbutic habit; to nervous diſorders, agues, a dropſy, conſumption, fluxes, and putrid fevers. As *milk* is ſoon turned ſour, and vegetable infuſions preſently become ſtale and muſty, in a warm, impure air; ſo the animal fluids may be corrupted from the like cauſe.

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THUS Air replete with the ſtench of dead whales, ſwarms of locuſts, or human bodies remaining long unburied on the field of battle, have been known to produce *Peſtilence*; all which ſhew the neceſſity of excluding *burial-grounds from great cities*, where the dead would become offenſive to the living. Overflowing of the *Nile*, ſucceeded by hot weather and ſoutherly winds, generally brings the *Plague*. The air of *Rome*, *Piſo*, and *Amſterdam* is extremely unhealthy at particular ſeaſons; and ſickneſs, or health among the inhabitants of *Egypt* keep regular periods with the winds.

EVERY animal is ſurrounded by its own atmoſphere, conſequently, the cleaner ſuch bodies are kept, more pure and wholeſome will be that air taken into their lungs by reſpiration, a circumſtance of greater importance to health than is generally imagined; for, *putrid fevers and jail diſtempers* equal in malignity with the plague itſelf, are chiefly occaſioned by naſtineſs, marſh vapour, or corrupted air.

Platnerus wrote an incomparable treatiſe on diſeaſes proceeding from want of cleanlineſs; and I would wiſh it to be remarked, that nothing ought to be conſidered as trifling that has the leaſt tendency to preſerve health.

Air has a diſſolving power upon Water, which is conſiderably increaſed by *heat*; and this is the reaſon why ſouth or weſtern breezes, which blow over thoſe immenſe tracts of water, the *Mediterranean* and *Atlantic Oceans*, are replete with moiſture; and conſequently relax and weaken the body.

MOISTURE or *Water, thus combined with warm Air* is rendered viſible, when condenſed into drops on the ſurface of bedchamber windows, by the ſudden acceſſion of external cold; and fogs are nothing but water decompoſed or ſeparated from the air which diſſolved it.

SOME liquors can only be *brewed* to perfection in particular places, which local peculiarity equally contributes to the production of bright and vivid

vivid colours, in the art of *dying*; and even the *high temper of Steel* derives much of its excellence from the qualities of *Air* and *Water* in certain places.

It is not leſs extraordinary, that liquors in a ſtate of fermentation, are immediately turned ſour, by the vaſt *rarefaction* and expanſion of the air; or, as ſome ſuppoſe, by the ſulphureous *effluvia* with which the air is impregnated by *lightning*; and if ſuch are the effects of air on fluids in general, we need not wonder that, by altering the blood and juices, they ſhould become the *cauſe*, or *cure of diſeaſes*.

As *vegetables* cannot grow without air; ſo neither can *fermentation* go on, or that proceſs in kindling up the ſparks of *animal life in hatching eggs* be completed without it. Living creatures cannot long ſurvive, or *flame* ſubſiſt, without a conſtant ſupply of freſh air, which therefore may properly be ſaid to contain an *enlivening ſpirit*.

If, for inſtance, a lighted taper be put under a bell-glaſs ſo cloſely fixed as totally to exclude the outward air, the flame will continue a longer or

ſhorter time, in proportion to the quantity and purity of air contained; and it may be obſerved gradually to burn more languidly as the pure, dephlogiſticated air is exhauſted; till at laſt the flame is totally extinguiſhed, although the taper is not burnt out.

JUST ſo this *Element* contributes to feed the *lamp of life*; and when its natural qualities are deſtroyed by the breath and perſpirable matter exhaling from animal bodies, it becomes highly pernicious, and deſtructive to health. Hence may be ſeen the neceſſity of avoiding warm, moiſt, confined air; the great advantage of ſleeping in lofty, open, bed-chambers, daily ventilated by freſh breezes, and of chuſing elevated, dry ſituations for the place of conſtant reſidence.

BY *Diet* is meant that *aliment* taken into the ſtomach for nouriſhment, which being digeſted and rendered *chylous*, at laſt enters into the compoſition of fleſh and blood: Hence many changes from ſickneſs to health, may gradually be brought

about by *food of different qualities*, which could not be ſo eaſily effected from *medicinal ſubſtances*; for, the firſt is continually received into the body in large quantities, and conſtitutes the very elements of its exiſtence, but the laſt are only given by grains, and ſcruples, for weeks or days.

SUCH a ſalutary change may rather be expected, becauſe, many ſubſtances are found to retain their natural qualities, in a conſiderable degree, after being digeſted and tranſmitted into the blood. Thus *turpentine* and *aſparagus* will affect the ſmell of urine; *madder-root* conſtantly taken with food will *tinge the bones red*; and *meadow garlic*, or *elder-leaves*, on which cattle have accidentally fed, will communicate to their milk, a ſtrong, diſagreeable flavour.

BOTH *animal*, and *vegetable bodies* originate from ſlender beginnings: The bulk ſuperadded to the body of an infant, till it advances to the ultimate period of growth, is all derived from the aliment which gives it nouriſhment; and the *acorn* unfolds its ſtamina, and gradually becomes an *oak* by the acceſſion of juices borrowed from the earth.

IN what manner *aliment* becomes *chyle*, how it is ripened into blood, and converted into bodily ſubſtance, has been fully ſhewn in treating on *digeſtion and nutrition*; but how nutritious matter, which before was ſenſeleſs and inert, at laſt becomes tranſubſtantiated, and endowed with *intellectual feeling* in the brain and nervous ſubſtance; how that feeling is ſo diverſified in different ſenſes of the body, as by means of the ſame organ, differently modified, *viz.* the *nerves*, to ſee in the *eye*, hear in the *ear*, and taſte in the *tongue*, is rather matter of aſtoniſhment than inveſtigation.

Pythagoras, in the cure of diſeaſes, preferred vegetable diet to the uſe of medicines; and determined the choice of its nature and quantity by the niceſt rules of temperance. *Aſclepiades*, the famous Bythynian phyſician alſo founded his practice on diet, and exerciſe; and we find that *dietetic* and *gymnaſtic* inſtitutions ſo much prevailed among the antients, that they cured many diſeaſes, of the *chronic kind*, with little aſſiſtance from medicine.

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THE *Regimen of Diet*, ſhould not only be adapted to particular ages and conſtitutions, but alſo to the nature of climate, and degree of the patient's exerciſe. When the quantity of food is too great, the veſſels will be overloaded, and the body oppreſſed; if too ſmall, it will waſte and decline.

EXCESS impairs the diſtinct exerciſe of the reaſoning faculties, and renders the perceptions of the mind dull and unfit for ſtudy or deep meditation. In a word, *whatever deſtroys the true balance between the ſolids and fluids will produce ſickneſs and diſeaſes*; ſo that either too high or low living may injure health, but of theſe extremes, the firſt is infinitely moſt common, and productive of danger; ſince the ſeveral inſtances of *longevity* are chiefly to be found among thoſe who live on *ſpare* and *ſimple diet*. On the other hand, men who are intemperate, and fill their veſſels to the extreme of burſting, frequently die before their natural time, of *apoplexies* or other violent diſeaſes.

The good effects of temperance are acknowledged by all, but duly regarded by few.

HE who means to be a *rational Epicure,* and to exalt the pleaſure of eating beyond the reach of a ſenſualiſt, ſhould eat with *ſimplicity* and *moderation,* for, then only, he *will taſte with his natural appetite.* If rich ſauces, and high-ſeaſoned diſhes are grateful to ſome, they poſſeſs not the genuine palate of nature, but one which is depraved; for, children and young people diſreliſh all ſuch aliment, and never grow fond of it, till their taſte is vitiated by habit and bad example.

WHEN the food and palate are both in their natural ſtate, the reliſh is high, and the body duly nouriſhed; but when by the arts of compound cookery, the firſt is deprived of its ſoft, balmy quality, and rendered almoſt *cauſtic* by ſalt, cayan pepper, and other high ſeaſoning, it ſtimulates the languid appetite, turns round the wheels of life too rapidly, and wears out the body before its time. Whereas, thoſe who abſtain from much wine, ſpirituous liquors, or hot, ſpicy aliment, acquire

acquire an exquisite degree of delicacy in the sense of tasting, and in general are much longer lived.

IF the qualities and taste which things naturally possess are right; those communicated to them by the too officious hand of art, must surely be wrong. The cool, refreshing *melon*, a native of scorching climates, intended to quench thirst and allay heat, is often robbed of its genuine properties by a profusion of pepper; and *acid fruits* which would strengthen the stomach and resist autumnal putrefaction, are lost in the taste of sugar.

THUS the beneficent simplicity of natere is superseded by customs which luxury has introduced; and it must be confessed, with regret, that in the affairs of human life, many are rather guided by the example of others, than by reason, or their own understanding; and, indeed, there is nothing so ludicrously absurd, that will not derive sanction from custom, and the prevailing fashion of the times.

IN fixing a ſtandard for *temperance*, our own feelings, or even the cuſtom of the place, would be inſufficient guides: We ſhould rather obſerve, in what degree of vigour and perfection animal life is ſupported among ſuch as live on the moſt ſimple fare, and in a manner conformable to nature.

IF many of the *Iriſh*, with *milk* and *potatoes*, enjoy perfect health, and exerciſe all the faculties of body and mind; if the *Perſians*, who were a brave and warlike people, ſubſiſted chiefly on *bread* and *creſſes*; and whole nations, who ſeldom eat fleſh, but only *rice* and *fruits*, live long and healthy; we might in this country, ſubtract largely from our *full*, *animal diet*, and with great advantages to the conſtitution. When imaginary wants are diſcarded, real ones will ſoon be ſupplied. We ſhould endeavour to diſtinguiſh the inſtinctive calls of Nature, from the artificial cravings of a depraved appetite. A whimſical palate is a troubleſome companion, and makes much larger demands than is its due. If the ſtomach refuſes natural food, it ought to do penance and be ſtarved into compliance.

GENERAL Rules, however, respecting *Diet* must always have their particular exceptions, according to the different constitutions for which they are directed. *Vegetable food* is less nourishing and more flatulent than that of the *animal kind*; but it resists putrefaction, is most proper for those of strong, *bilious habits*, and only requires pure water for beverage; but on the contrary, fermented liquors will be necessary for such as are accustomed to the plentiful use of *animal diet*.

How far the constitution may be changed by vegetable diet, is evident to those who have been cured of *inveterate scurvies* by the plentiful use of *fresh vegetables*, and *pure water*; and instances are not wanting, where even the irascible passions have been, in a great measure, subdued by the same means.

Aretæus mentions the cure of a *leprosy*, by total abstinence from animal food, and the constant use of vegetables, in those afflicted with that loathsome disease, who, from fear of infection, had been abandoned by society, and driven out into desert places.

Pure

Pure water, a *simple medicine* of sovereign efficacy, is that elemental fluid designed by Nature for the nourishment of all bodies, whether *animal* or *vegetable*; it softens the food in the stomach, attemperates corrupted bile, dissolves the sharp salts and rancid oils, and washes them out of the body by the secretion of urine. How superior is this inestimable liquor, gushing from the pure bosom of a rock, as from the cellar of Nature, to all the artificial compounds which luxury, or human invention can devise.

THE feverish and sickly stomach often thirsts after a draught of the crystal spring, as the greatest cordial, while it nauseates the richest wines; and indeed, wine, beer, and all other made liquors, are only water sophisticated with different proportions of oil, salts, and sulphur, so altered by *fermentation*, as to set their spirit at liberty, which then taken into the body, produces a *narcotic effect* on the nerves, and occasions intoxication.

I am far from ſuppoſing that thoſe liquors can never be beneficial; and would only infer, that they are prejudicial by abuſe, that they only become neceſſary from cuſtom, that they ought to be uſed with great moderation, and rather as *cordials* than *common drinks*.

THAT water is beſt which is perfectly clear, inſipid, light, and which will inſtantly incorporate and lather with ſoap; but clearneſs is not ſo certain a teſt of its purity, as lightneſs; for, the petrifying ſpring at *Knaſborough*, loaded with ſtony particles, is extremely limpid. *Diſtilled*, or *ſnow-water*, and that which has paſſed a *filtering ſtone*, is pureſt; and its lightneſs may be determined by the *hydrometer*.

WATER-DRINKERS, and thoſe who chiefly live on *vegetables*, are obſerved to be more healthy, and long-lived than others: In ſuch, the faculties of the body and mind are more ſtrong; their teeth more white, their breath is more ſweet, and their ſight more perfect, than in thoſe who uſe fermented

mented liquors, and much animal food. They are less subject to *gout*, and *gravel*, *colic*, *scurvy*, or *apoplexy*, and acute diseases in general.

QUADRUPEDS living on flesh, are fierce in their nature and the exhalation from their bodies is putrid and offensive; whereas cows, sheep, and other animals which feed on herbage, are much more gentle; their breath is sweet, and their excrement almost inodorous.

FROM what has preceded it appears, that *much animal food* is unwholesome; especially to those of *bilious habits*, in warm, moist weather; it will load the blood with *rancid oils*, spoil the sweetness of breath, render the several discharges more offensive, and dispose the body to diseases of the putrid kind; which may best be prevented, or cured by vegetable, acescent diet, a total abstinence from fermented liquors, and the liberal use of *pure water*, with *vegetable acids*.

Sugar is not so pernicious as some have imagined. It may be obtained from *vegetable juices*, as well as *animal fluids*: It abounds in the sap of

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the *maple and birch tree*, in the *ſkirret, red beet-root*, and other plants; and freſh new-milk whey, in ſummer, affords a conſiderable quantity.

Vinegar, in many caſes, is a ſovereign, *ſimple medicine*, but being cheap, and at every one's ſervice, it is often diſregarded, to make way for things of higher price, and inferior efficacy. Moderately taken, it aſſiſts digeſtion, cures head-ache, ſtrengthens the nerves, and powerfully reſiſts putrefaction.

MUCH *ſalt* taken with food is extremely hurtful; for, it communicates to the blood a *muriatic* or *briny acrimony*, deſtroys the taſte, hardens the fibres, produces ſcurvy, and haſtens old age. Plentiful dilution with ſoft, pure water, is an effectual remedy for ſuch complaints. — Salt, however, in moderation, has been experimentally found to promote, and not to retard the ſolution of animal ſubſtances.

A freſh ſupply of ſolid food, before the laſt meal is perfectly digeſted and turned into blood, is highly pernicious; but as I have remarked the

injuries

injuries arifing from *long fafting*, a glafs of fpring-water, or cup of Tea, may be proper to diffolve, and affift the ftomach in getting rid of its remains.

IF the patient after eating is oppreffed at ftomach, fleepy, and affected with internal throbbing, or flufhings in the face; in a word, if the body and mind are much lefs vigorous and fit for action than before, he has then exceeded the proper quantity of food. How far the qualities of food are of confequence to health, may be evidently feen in the moft ftriking of all human calamities, a *famine*, which is often followed by the *plague*, from the extreme fcarcity of wholefome aliment.

EARLY rifing, particularly in fummer, contributes greatly to health, pleafure, and convenience; for, in the morning, the body is more active, and the faculties of the mind more diftinct and clear. We might here add, that going foon to bed has likewife its peculiar advantages, notwithftanding the joys of twelve o'clock; even plants themfelves experience a kind of inconfcious

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repose; which did not escape the attention of that *immortal Poet*, who was familiar with all Nature, and saw the "winking mary-buds begin to ope their golden eyes" at the glorious Sun's approach.

BY *Exercise* is meant that general voluntary action of the muscles which puts the body in motion, as well as its passive agitation in a carriage, or on horseback, where it does not properly move itself, but is moved by something else: The first is always preferable to the last, where the strength is sufficient to allow it.

BY the propelling force of the heart, the stream of blood is driven through its several pipes and strainers; but this great instrument of circulation, though admirably adapted for that purpose, is not sufficient to keep up the blood's motion in the smallest order of vessels, without the contractive power of the muscles by *exercise*: In what manner it contributes to that end may be demonstrated, by the simple experiment of grasping a lancet-case or any solid body in the hand, after opening

ing a vein, where the blood paſſes too ſlowly from the orifice; but when the muſcles are contracted, inſtantly ſpouts out in a full ſtream.

Herodicus, the maſter of *Hippocrates*, who is ſaid to have recovered himſelf by the power of *Exerciſe*, was the inventor of the *gymnaſtic art*, as the means of *preſerving*, or *reſtoring health*. If this ancient phyſician urged his practice to a faulty extreme, by thus attempting, too indiſcriminately, to cure all diſeaſes; ſurely many of the moderns are as much to blame, in expecting to remove them without it; particularly thoſe of the *chronic kind*, which generally ariſe from weakneſs, or ſome fault in the ſolids to which, the power of *exerciſe* is immediately applied.

Exerciſe or bodily motion increaſes *animal heat* by ſame law of nature that the electric globe, in whirling round, collects *fire*; hence it renders the blood more fluid, and promotes its free and equal diſtribution through the whole vaſcular ſyſtem. Many diſeaſes therefore, proceeding from weakneſs and a defect of circulation, may, by

exerciſe,

exercise, be effectually relieved; such as *nervous* and *hypochondriacal disorders*, *agues*, *dropsy*, *rheumatism*, and *palsy*.

EVERY fibre of a living body is endowed with an *obscure vibratory motion* which permanently exists throughout the whole system, even when apparently at rest; and from the exertion of *this living principle*, increased or put into additional motion by exercise, *atmospherical fire* is actually collected, in quantity proportionate to the degree of its motion, as certainly as in the *electric machine*; and it is evident, that motion, even in inanimate bodies, collects heat somewhat in the same manner; for, iron may be hammered till it becomes hot, and attrition or rubbing one body against another, will produce fire.

ALTHOUGH this may at first appear a very extraordinary position, nothing is more experimentally true; and it is farther confirmed by the *human body becoming electric, without the mediation of any electric substance whatever*; a very remarkable instance of *atmospherical electricity* being mentioned by *Brydone* in his entertaining Tour through Sicily;

 viz.

viz. Professor Saussure and Mr. Jalabert passing over the *Alps in a thunder-storm*, perceived their bodies so full of electric fire, that, to their astonishment, spontaneous flashes darted from their fingers, with a cracking noise, and with the same painful sensations as when electrified.

THE same elegant writer ingeniously proposes that *invalids* subject to the noxious influence of *damp air*, should wear a fine, dry, flannel waistcoat (an electric substance) next their skin, loosely covered with another of silk, by the friction of which a considerable degree of *electricity* will constantly be produced: That this is not a vague surmise but founded in reality, may be known from the following simple fact which I have repeatedly observed, and indeed, at first, by mere accident, *viz.* let any one wearing silk stockings, over gauze worsted ones; on taking them off at night, gently shake them, and he will generally perceive sparks discharged with a cracking noise: If it is dark, the *electric fire* may often be distinctly seen. This experiment will succeed best in *dry weather*, when the under-stockings are void of moisture which destroys their electric quality.

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THE diffusion of *atmospherical fire* through the parts of matter in general, seems to have been wisely opposed by the Creator, to that universal law of *attraction*, which tends to concentrate and bring them together. Hence by alternate *attraction* and *repulsion*, the motion of the material system is uniformly supported. Without fire, water would become ice; vegetation would be destroyed, and even the blood of animals converted into a solid mass: In a word, motion is the instrument which promotes the influence of *atmospherical fire — the enlivening spirit and soul of nature* which pervades and actuates the whole.

FROM what has preceded, it will follow, that too much or little *atmospherical fire* thus collected in the human system may be injurious to health. Those, for example, who are young, have strong *elastic fibres*, and use *violent exercise*, in whom it too much abounds, will be in danger of sudden fluxes of blood from the nose or lungs, as well as pleurisies and other inflammatory disorders; on the contrary, where it is defective, as in those of

phlegmatic conſtitutions, advanced age, or *inactive life*; *agues, dropſy, rheumatiſm*; and a *venous plethora* will frequently be the conſequence.

As the animal juices are accumulated by nouriſhment, and reſt; and conſumed by abſtinence, and motion; it is a circumſtance of the higheſt importance to health, to proportion thoſe oppoſite qualities duly, that the natural balance may be kept up between the ſolids and fluids.

Moderate Exerciſe is a ſovereign remedy either in preſerving, or reſtoring health: It increaſes animal heat, invigorates the heart, and promotes a free and equal diſtribution of blood. It aſſiſts the ſecretions of *perſpiration, urine,* and *ſtool*; ſtrengthens appetite and digeſtion, renders the body leſs liable to the malignant influence of weather, or to the attack of putrid diſeaſes; in a word, it animates every part of the human ſyſtem, and likewiſe gives alacrity and vigour to the mind.

THE ſalutary power of *Exerciſe*, and *good Air*, is particularly exemplified in laborious country

people,

people, who, notwithſtanding their indifferent food, are generally hearty and ſtrong. They have a much better appetite, and digeſtion than the *rich* and *indolent*. By increaſed heat conſequent of *Exerciſe*, the oily and watery parts of their food, ſuch as it is, will be more uniformly mixed, and worked up into a proper degree of richneſs, and conſiſtence to nouriſh the body.

Exerciſe, by walking in a dry, freſh air, is remarkably beneficial to thoſe of weak ſolids, and pale watery blood; for, it perceptibly increaſes their ſtrength, and renders the complexion more *freſh* and *florid*: From this local alteration of the countenance, we may conclude the effect to be general; and that the blood is not only impregnated with the *enlivening ſpirit of the Air*, as we have already remarked; but being rendered more fluid, by an additional degree of vital heat, is capable of circulating through veſſels of extreme fineneſs, which were impervious to it before; and upon thoſe ſimple principles it may clearly be ſeen, why *Exerciſe* will be found a ſovereign remedy in all *chronic diſeaſes* proceeding from lax fibres, and a cold cauſe.

AN *over-lax*, or *tenſe* ſtate of the ſolids, are productive of many diſeaſes which may be relieved by *Diet* and *Exerciſe*. Abſtinence, and reſt relax the ſolids, and diſſolve the blood; and pure water, with *nitre*, contributes to the ſame end: On the contrary, the blood of labouring people, who have ſtrong ſolids, is rich, and florid; whilſt that of the weak and ſedentary, is pale, crude, and watery: Therefore Exerciſe, dry Air, peruvian bark, ſteel, and cold bath, will brace the fibres and enrich the blood, if not contaminated by a *ſcrophulous*, *venereal*, or *ſcorbutic taint*.

IN thoſe indeed, of lean, dry habits, who live abſtemiouſly, and are far advanced in years, Exerciſe is not ſo neceſſary, or beneficial; becauſe it increaſes that rigidity of the fibres which then too much prevails, and conſumes the moiſture which old people, from the diminution of their blood and juices, are leſs able to ſpare.

THE frequent uſe of the *fleſh-bruſh*, or friction with hot flannels impregnated with the fumes of myrrh, or gum copal, thrown on hot coals, will be

be found of much greater benefit, to thoſe of lax ſolids, and a languid circulation, than is generally imagined. The patient's body and extremities ſhould be rubbed twice or thrice a day: This ſpecies of Exerciſe may be looked upon as a kind of *gentle electricity* which will generate heat, ſtrengthen the fibres, promote the circulation of blood and aſſiſt perſpiration; it will prevent that *venous plenitude* or ſwelling of the veins ſo frequent in advanced age; end there is another beneficial effect, which, I think, has not been mentioned, viz. *friction of the body will conſtantly occaſion the immediate diſcharge of wind from the ſtomach and bowels*, by conſent between the ſkin and thoſe parts, merely from the principle of *irritability* or that property of the animal fibre to re-act when acted upon by a gentle ſtimulus, and by which the contiguous parts are brought into action.

Swinging is productive of the like benefit; from the percuſſion of air, and the great reſiſtance thence occaſioned by bodies ſwiftly moving through it.

 Hence,

Hence, *atmoſpherical fire* will be collected by ſuch *motion*, and its quantity will be proportionate to the velocity of the body ſo moved; otherwiſe, thoſe thus violently impelled through the cold atmoſphere would be almoſt chilled to death; whereas, on the contrary, they find themſelves warmer than before.

How different is ſleep, after *exerciſe*, from that produced by the effects of intoxication, or a full ſtomach? The firſt is tranquil and refreſhing, the laſt diſturbed by dreams, ſuffocation, or nightmare; nor does adventitious heat obtained from the aſſiſtance of fire, occaſion that pleaſurable, and permanent glow, acquired by *bodily motion*: In ſhort, *Exerciſe* is the parent of *fortitude* and *health*; but *indolence* begets *timidity* and *diſeaſes*; for, when animal, and vegetable bodies, or even the elements of *water* and *air* remain too long at reſt, they depart from their original qualities; the firſt tend to diſſolution and decay, the laſt become putrid and highly noxious.

IF *intemperance* and *irregularity of the passions* wear out the body and anticipate its decay; the votary to *temperance* will probably arrive at old age, without diseases or pain: Although, by fatal necessity, he was born to die; the bond of union between the soul and body will rather be gently loosed, than forcibly torn asunder. When the principles of life are nearly exhausted, as a lamp deprived of oil, the vital flame will languish, and at last, must needs be extinguished!

WE have now endeavoured to shew the state of the body and mind, and how, by their mutual sympathy, they co-operate with each other; what condition of the body fits it for health, or tends to introduce diseases; how it is altered by the *effect of age*; subject to the internal controul of *inordinate passions*; "*Servile to all the skyey influences*," and its operations insensibly perverted by the *prevalence of custom*, so as to render it more variable than the weather-glass, and in a perpetual state of change, from the cradle to the grave.

HUMAN

HUMAN life, thus ſurrounded and aſſailed by a train of unavoidable evils, may indeed, be compared to a fleeting ſhadow "which never continues in one ſtay:" Like the unballaſted bark in a troubled ocean, it becomes the ſport of winds and tides, and without the aid of *Religion*, *Philoſophy*, and *Reaſon*, is in continual danger of being ſwallowed up and loſt!

IF ſuch are the various affections of the body and mind, and if our manner of living changes our manner of thinking, and influences our moral conduct; thrice happy they who have been accuſtomed to *early Temperance*, and the *due regulation of their Paſſions*, as powerful motives to virtue, and the ſureſt means of *preſerving health*, *prolonging life*, and taſting its pleaſures with the dignity and refinement of rational creatures.

THE END.